

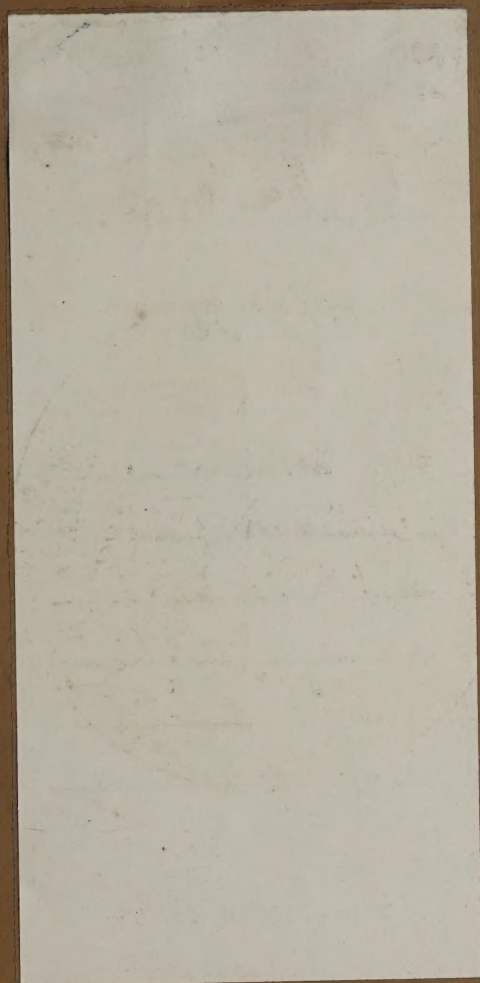
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REFUGIUM BOTANICUM.

VOL. III.

LONDON :

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BISHOPSGATE.

REFUGIUM BOTANICUM

OR

FIGURES AND DESCRIPTIONS

FROM LIVING SPECIMENS

OF

LITTLE KNOWN OR NEW PLANTS

OF BOTANICAL INTEREST.

EDITED BY

W. WILSON SAUNDERS, F.R.S., F.L.S.

THE DESCRIPTIONS BY

J. G. BAKER, F.L.S.

ASSISTANT CURATOR OF THE KEW HERBARIUM.

THE PLATES BY W. H. FITCH.

VOL. III.

LONDON:

JOHN VAN VOORST, 1, PATERNOSTER ROW.

1870.

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TAB. 145.

Natural Order DILLENIACEÆ.

Tribe HIBBERTIÆ.

Genus HIBBERTIA, Andr.

Sect. PLEURANDRA. Stamina unilateralia; staminodia nulla; pedunculi uniflori; ovaria 2, sæpissime villosa.

H. STRICTA (*R. Brown*). Frutex humilis ramis copiosis griseo-pubescentibus, foliis parvis linearibus margine revolutis, plus minus stellato-tomentosis, sepalis oblongo-lanceolatis pubescentibus, interioribus marginibus late membranaceis, petalis obovatis emarginatis patulis sepalis excedentibus, staminibus 8—12, carpellis griseo-villosis 4—6-ovulatis, stylis filiformibus staminibus æquantibus. — *F. Muell. Pl. Vict.* i. p. 15; *Benth. Fl. Austral.* i. p. 27. *Pleurandra stricta, riparia & ericifolia, D.C. Prodr.* i. p. 419—422. *P. cistiflora, Sieb. Reich. Icon. Exot.* t. 79.

Frequent in several parts of Australia.

A very variable plant, especially in habit of growth and pubescence. The variety from which our figure and description are made was received under the name of *Hibbertia Reedii*. An erect copiously branched woody shrub under a foot high, the young twigs reddish, and copiously clothed with gray spreading pubescence, the old branches gray and denuded. *Leaves* crowded, quite sessile, linear, rigid, a quarter to half an inch long, with a bluntish point and persistently revolute edges rolled back to the thick midrib, gray-green and abundantly clothed with short spreading silvery hairs. *Flowers* abundant, terminal on short branchlets, sometimes nearly sessile. *Sepals* five, ovate-lanceolate, pale green, pubescent like the leaves on the outside, the inner ones with broadly membranous edges. *Expanded flower* half to five-eighths of an inch across, the *petals* pale yellow, broadly obovate, emarginate at the apex, when expanded spreading almost horizontally. *Stamens* 6—9, all placed on one side of the carpels, the short filaments united at the base. *Carpels* 4—6-ovulate, densely gray-silky, the filiform *styles* equalling the stamens. *Capsules* small, membranous, pubescent.

Tab. 145.—1, leaf from above; 2, ditto from below; 3, flower closed; 4, ditto open; 5, single petal; 6, open flower without petals; 7, stamens of one flower; 8, pistil of ditto: all magnified.—*J. G. B.*

This is a somewhat delicate pretty little plant, flowering freely, and requires a dry airy greenhouse in winter, and the open air in summer. It should be potted in sandy peat, and have plenty of drainage. When in flower it has a lively bright appearance, and is well worthy of cultivation. I have had the plant for some years, and I have now no note from whence I obtained it.—*W. W. S.*

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TAB. 146.

Natural Order RHAMNACEÆ.

Tribe GOUANIEÆ.

Genus *HELINUS* (*E. Meyer*). Calycis tubo late obconico, ovario adhærente, limbi lobis 5, patentibus. Petala 5, cucullata, margine disci inserta. Stamina 5, petalis æquilonga; antheræ loculi longitudinaliter dehiscentes. Discus epigynus planiusculus, tubum calycis implens. Ovarium triloculare; stylus trifidus, stigmatibus recurvis. Fructus inferus, coriaceus, obovato-globosus, apice areolatus, intus tricoccus, coccis crustaceis intus dehiscentibus, demum ab axi centrali tripartito solutis. Semina plano-convexa; testa coriacea nitida, albumine carnosio; cotyledones maximæ; radícula brevissima.—*Benth. et Hook. Gen. Plant.* i. p. 385.

H. OVATUS (*E. Meyer*). Ramis gracilibus cite calvatis, foliis late cordato-ovatis, mox utrinque omnino glabris, sepalis nudis, fructibus lævibus.—*Harv. et Sond. Fl. Cap.* i. p. 479; *Hemsl. Fl. Trop. Africa*, i. p. 384.

A native of Natal, and gathered also by Dr. Meller on the Livingstone expedition to Zambesi-land, and by Dr. Welwitsch in Angola.

An indefinitely-climbing shrub, with firm gray woody branches only thinly silky when young, soon quite glabrous, with firm woody tendrils from the axils of some of the leaves coiled up at the end like a watch-spring. *Leaves* on short petioles, broad-ovate or sometimes nearly round, the lower ones an inch or an inch and a half long, quite naked on both sides when mature, the base cordate, the point with a fine deciduous mucro, the veins fine and not conspicuous. *Stipules* minute, setaceous, deciduous. *Peduncles* slender, naked, six to twelve lines long. The *flowers* in simple umbels of generally four to six flowers each. *Pedicels* naked or when young a little silky, one or two lines long. *Expanded flower* not more than two lines across, the disk filling up the central half, the ovate-lanceolate *sepals* deflexed, the *stamens* concealed in the curious small hooded whitish *petals*. *Style* filiform, conspicuously three-cleft. *Fruit* hard, bony, ob-ovoid, smooth, a quarter of an inch deep.

Tab. 146.—1, bud; 2, expanded flower; 3, vertical section of ditto; 4, single petal; 5, stamen: all magnified.—*J. G. B.*

A free-growing climbing plant, requiring the temperature of the greenhouse, and will thrive when grown in rich sandy loam and allowed plenty of pot room. The foliage is of a peculiar uniform yellowish green colour. I obtained the plant from seeds collected in Natal by Mr. T. Cooper.—*W. W. S.*

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W.H. Fitch. del. et lith.

J.N. Fitch, imp.

Geranium cafferum, Eck. & Zeyh.

TAB. 147.

Natural Order GERANIACEÆ.

Tribe GERANIEÆ.

Genus GERANIUM, *Linn.*

G. CAFFRUM (*Ecklon et Zeyher*). Caulibus basi frutescentibus sursum herbaceis copiose ramosis diffusis gracilibus breviter glanduloso-pubescentibus, foliis utrinque viridibus breviter strigillosis profunde digitatim 3—5 partitis divisionibus plus minus profunde pinnatifidis, pedunculis elongatis bifloris, corollis pro genere mediocribus. —*Ecklon & Zeyher, Pl. Cap. No. 448; Harv. et Sond. Fl. Cap. vol. i. p. 258.*

A native of Cape Colony.

A copiously-branched perennial, woody at the base, with diffuse herbaceous slender *stems* often one or two feet long and entangled, generally naked in the lower part, but clothed with short gray glandular pubescence upwards. *Stipules* cut down into several linear-setaceous divisions. *Petioles* slender, spreading, of the upper leaves about an inch, of the lower three or four inches long. *Leaves* one to three inches broad, herbaceous in texture, full green above and clothed with minute adpressed hairs, paler below and only shortly hairy on the ribs, cut down nearly or quite to the base into 3—5 divisions with several acute erecto-patent irregular deltoid or linear teeth. *Flowers* in pairs on long slender *pedicels* from the axils of the leaves. *Bracts* minute, linear. *Pedicels* slender, 3—6 lines long, clothed with short gray glandular pubescence, like the peduncles and branches. *Sepals* ovate-cuspidate, three lines deep, strongly nerved and more or less pubescent on the back. *Petals* pale lilac or white, obovate, emarginate at the apex, considerably exceeding the *calyx*, the expanded *corolla* about half an inch broad. *Torus* 6—8 lines long, the *carpels* pubescent.

Tab. 147.—1, flower without petals; 2, single petal: both magnified. —*J. G. B.*

This species of *Geranium* has a weak rambling habit, and but little pretensions to beauty. It will grow in any good light soil, and requires protection from the frost in the winter. While

the South of Africa is the head-quarters of the genus *Pelargonium*, there are but few true Geraniums, five only being enumerated in Harvey and Sonder's 'Flora Capensis.' The figure was drawn from a plant kindly communicated to me by Mr. Thos. Cooper, of Reigate.—*W. W. S.*

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W.W.S del. Fitch lith.

J.N Fitch imp.

Pelargonium alchemilloides, Willd.

TAB. 148.

Natural Order GERANIACEÆ.

Tribe PELARGONIÆÆ.

Genus PELARGONIUM, *L'Herit.*

Sect. EUMORPHA. Caule herbaceo, ramoso, foliis longe petiolatis rotundato-reniformibus palmatisectis.

- P. ALCHEMILLOIDES (*Willd. Sp. Plant.* iii. p. 656). Caule herbaceo ramoso pilis patentibus lucidis conspicue vestito, bracteis ovatis parvis, foliis rotundato-reniformibus ad medium quinquepartitis sinibus angustis, utrinque pilis similibus adpressis vestitis, sæpe paullulum zonatis, umbellis 3—6 floris, petalis inæqualibus emaculatis superioribus calyce subduplo longioribus. — *Geranium alchemilloides*, *Cav. Diss.* iv. p. 234, t. 98. *P. aphanoides*, *Thunb. Fl. Cap.* p. 514. *P. dondiaefolium*, *Link. Enum.* ii. p. 187?

A native of Cape Colony.

Stems herbaceous, branched, erect, attaining a height of one or two feet, densely clothed with spreading or slightly deflexed firm silvery hairs often a line long. *Bracts* ovate, a quarter of an inch long, not ciliated. *Leaves* rotundato-reniform, the fully developed ones two to three inches across, cut about half-way down into five lobes with very narrow sinuses between them, often indistinctly zonate, and both sides conspicuously clothed with adpressed glittering hairs like those of the stem. *Petioles* of the lower leaves three or four inches long, clothed like the branches. *Peduncles* ascending, often six or nine inches long. *Umbels* 3—6-flowered. The *pedicels*, including the *calyx-spur*, finally an inch long. *Sepals* 4—5 lines long, lanceolate, acuminate, densely clothed on the back with hairs like those of the stem. *Petals* cream-coloured with pink veins, the two upper ones 7—8 lines deep by three lines broad, the three lower ones shorter and narrower. *Beak of the fruit* 15—18 lines long, densely pilose.

Tab. 148.—1, side view of flower with pedicel; 2, front view of flower: both magnified.—*J. G. B.*

An unpretending species of the large genus *Pelargonium*, with rather a weedy appearance. It flowers freely when grown in light sandy loam, allowed the open air during the summer, and a cool greenhouse in winter. The plant was sent to me from South Africa by Mr. T. Cooper.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Pelargonium fissum, Baker.

TAB. 149.

Natural Order GERANIACEÆ.

Tribe PELARGONIÆÆ.

Genus PELARGONIUM, *L'Herit.*

Section EUMORPHA.

P. FISSUM (*Baker*). Caule herbaceo ramoso adpresse strigilloso, bracteis magnis, late ovatis, foliis rotundato-reniformibus ezonatis utrinque primum inconspicue adpresse strigillosis mox calvatis, ultra medium palmatisectis sinubus apertis, umbellus 4—5 floris, petalis æqualibus emaculatis calyce paullulum longioribus.

A native of Cape Colony, gathered long ago by Burchell, and imported recently in a living state by Mr. Cooper.

General habit entirely that of *P. alchemilloides*, but the *bracts* larger, broad-ovate; the hairs of the *stem* and *peduncles* few and not at all spreading, and consequently quite inconspicuous; the *leaves* thinly hairy on both sides when young, but becoming nearly or quite glabrous when mature, more deeply cut down, and the sinuses open and the teeth of the lobes sharper and deeper; the *sepals* the same shape and length, but less silky on the back; the *petals* subequal, a pale pinkish hue without dots or streaks, and all of them slightly exceeding the *calyx*.

Tab. 149.—1, front view of flower, magnified.—*J. G. B.*

Another species of *Pelargonium* of little floral merit, requiring the same soil and treatment as *P. alchemilloides*. It was sent to me from South Africa by Mr. T. Cooper, and keeps constant to the characters assigned after several years' cultivation.—*W. W. S.*

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TAB. 150.

Natural Order GERANIACEÆ.

Tribe PELARGONIÆÆ.

Genus PELARGONIUM, *L'Herit.*

Section EUMORPHA.

P. RANUNCULOPHYLLUM (*Ecklon & Zeyher, Pl. Cap.* 593). Caule herbaceo ramoso breviter griseo-canesciente, bracteis magnis late ovatis, foliis rotundato-reniformibus distincte zonatis ad tertiam latitudinis palmatisectis, utrinque breviter griseo-pubescentibus, umbellis 5—7-floris, petalis æqualibus emaculatis calyce paullulum longioribus.—*P. alchemilloides* var.? *ranunculifolium*, *Harv. Fl. Cap.* vol. i. p. 297.

A native of Cape Colony, gathered previously by Ecklon & Zeyher and Drege (7458 b), and recently imported in a living state by Mr. Cooper.

General habit that of *P. alchemilloides*. The stem permanently clothed with thin gray pubescence. Bracts broad-ovate, measuring 5—6 lines long and broad, not ciliated. Leaves thicker in texture than in the two preceding, clothed with short gray dull pubescence like that of the stem, the fully developed ones two and a half to three inches broad, not cut more than a third of the way down and the sinuses narrow, the zone fainter than in the next, but always clearly visible. Flowers 5—7 in an umbel. The pedicel, including the calyx-spur, finally 12 to 15 lines long. Sepals 4—5 lines deep, canescent on the back, narrow-lanceolate gradually narrowed to a long point. Petals subequal, 7—8 lines long, blush-coloured, not at all spotted, the veins a little deeper, the upper ones an eighth of an inch broad, the lower ones a little narrower. Beak with the carpels an inch long.

In the flowers and leaves this considerably resembles *P. tabulare*, but the clothing of the plant is very different, and in the latter the stipules are smaller, linear, and regularly ciliated.

Tab. 150.—1, flower with pedicel; 2, separate petal: both magnified.—*J. G. B.*

A free-flowering species, with pretty horseshoe-marked leaves and neat blush-coloured flowers. Grown side-by-side with *Pelargonium alchemilloides*, its specific characters are very apparent, and after some years' cultivation I find them constant. I received the plant from Mr. T. Cooper, who collected it in South Africa. It requires exactly the same soil and treatment as the two last-figured species.—*W. W. S.*

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W.H. Fitch del et lith

J.N. Fitch imp.

Pelargonium cinctum, Baker

TAB. 151.

Natural Order GERANIACEÆ.

Tribe PELARGONIÆ.

Genus PELARGONIUM, *L'Herit.*

Section EUMORPHA.

P. CINCTUM (*Baker*). Caule herbaceo ramoso breviter griseo-canescente, bracteis parvis ovatis, foliis rotundato-reniformibus distincte zonatis ad tertiam vel dimidiam latitudinis palmatisectis, utrinque tenuiter griseo-pubescentibus, umbellis 2—3-floris, petalis parvis æqualibus rubro maculatis sepalis non excedentibus.

A native of Cape Colony, imported in a living state, like the three last, by Mr. Cooper.

General habit as in the three last, but the whole plant on a smaller scale. The *stems* slender, harsh to the touch, the hairs throughout short and subadpressed. *Bracts* ovate, two to two and a half lines long by about half as broad. *Fully-developed leaves* one and a half inch to two inches broad, firm in texture, the pubescence thin and adpressed like that of the stem, the divisions reaching from a third to half-way down, the zone of brown very prominent and quite permanent, even in dried specimens. *Flowers* never more than two or three in an umbel. The *pedicels*, including the *calyx-spur*, six to eight lines long. *Sepals* four lines deep, linear-acuminate, thinly canescent on the back. *Petals* subequal, four lines long by under a line broad, just equalling the sepals, the two upper ones erect, close to each other three-quarters of the way up, pure white with a distinct scarlet spot in the middle and sometimes with a few dots above and below it. *Beak* with *carpels* an inch long.

Tab. 151.—1, side view of flower with pedicel; 2, front view of flower; 3, one of the upper petals : all magnified.—*J. G. B.*

A very pretty-foliaged plant, particularly in the state before flowering, when the bright rich green leaves, with black horseshoe zones, cover the surface of the pot. The flowers are small, but lively in appearance and produced freely. This is another species of Mr. T. Cooper's collecting in South Africa, and I received the plant from him. Requires the same treatment and soil as the foregoing species.—*W. W. S.*

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W. H. Fitch, del et lith.

J. N. Fitch, imp.

Rhipsalis rhombea, Pfeiff.

TAB. 152.

Natural Order CACTACEÆ.

Tribe OPUNTIEÆ.

Genus RHIPSALIS, Gærtn.

R. RHOMBEA (*Pfieff. Lab. Cact. p. 433*). Caulibus diffusis articulatis copiose ramosis, articulis inferioribus triquetris angulis alatis, superioribus foliiformibus complanatis duplo ad quadruplo longioribus quam latis viridibus omnino nudis profunde crenatis, basi cuneatis, nervo medio incrassato præditis, floribus ex crenaturis solitariis, calycibus campanulatis lobis irregularibus rotundatis, petalis flavis calyce duplo longioribus.

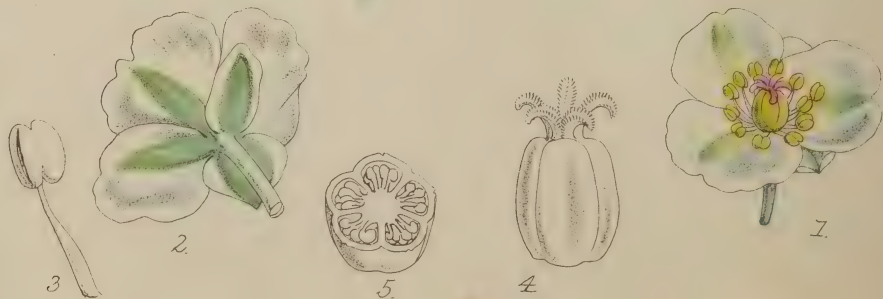
A native of Brazil.

Stems attaining a height of two feet or more, copiously branched, the old ones gray and terete, those next in order green, triangular, without a wing, the next with a fleshy crenate wing to each of the three angles, the uppermost, which are either in opposite pairs or four or five springing from the last node, flattened out into a leaf-like expansion one to four inches long by one and a half inch to two inches broad, furnished with a distinct thickened midrib, the surface a moderate apple-green colour without any hairs or spines, the base cuneate, the edges cut a quarter or a third of the way down to the midrib into several broad blunt crenations. *Flowers* quite sessile, springing singly from the hollows of the crenations. *Calyx* campanulate, confluent with the *ovary*, reddish brown, with several unequal rounded lobes. *Petals* pale yellow, obovate, concave, twice as long as the *calyx*, marcescent. *Stamens* indefinite. *Stigmas* four.

Tab. 152.—1, separate flower, closed; 2, ditto expanded: both magnified.—*J. G. B.*

An interesting species of a very remarkable genus of branched plants belonging to the Cactus family. It requires the temperature of a warm dry greenhouse, and should be grown in a mixture of turfy loam, peat and sand. The plant wants but little water, particularly in the winter season. It flowers very copiously, and when the branches are covered with their golden yellow blossoms it has a very pleasing appearance. Of the source from whence I obtained this plant I have no note.—*W. W. S.*

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TAB. 153.

Natural Order FICOIDEÆ.

Tribe MOLLUGINEÆ.

Genus PHARNACEUM, Linn.

Sect. HYPERTELIS (*E. Meyer*). Stamina hypogyna, 12—30, libera vel deorsum in cupulam brevem vel phalanges 3—5 connexa; semina lenticularia vel pyriformia.

P. ACIDUM (*Hook. fil. Ic. Plant. t. 1025*). Perenne, glaberrimum, glaucum, caule ramoso, foliis oppositis et subfasciculatis cylindraceis vel facie complanatis anguste oblanceolatis, pedunculis elongatis, floribus umbellatis, sepalis inæqualibus exterioribus viridibus, interioribus orbiculatis membranaceis petaloideis, disco inconspicuo, staminibus 12—20, basi liberis, stylis 5.

A native of the sands of the sea-shore in St. Helena, where, according to Burchell, it is called "Longwood Samphire."

An erect copiously-branched shrub under a foot high. The old stems quite woody; the branches terete, herbaceous, like the rest of the plant quite glabrous, glaucous-gray with a tinge of red. Leaves in opposite pairs or subfasciculate, so fleshy in texture as to be nearly cylindrical, very glaucous, horizontal or a little drooping, the lower ones twelve to fifteen lines long by an eighth of an inch broad three-quarters of the way up. Peduncles terminal or produced from the nodes, ascending, one to four inches long. Flowers three to nine in an umbel; the pedicels finally six to eight lines long, subtended by a whorl of minute linear bracts. Calyx three to four lines deep, the sepals much imbricated and unequal, the outer ones oblong, obtuse, all green and fleshy or with a narrow white membranous border, the inner ones orbicular and petaloid, green only in the centre or the innermost not all. Stamens twelve to twenty from an inconspicuous hypogynous disk. Styles and cells of the capsule five.

Tab. 153.—1, front view of flower; 2, back view; 3, stamen; 4, pistil; 5, horizontal section of ovary: all magnified.—J. G. B.

I have grown this plant from seeds kindly supplied to me by my friend Dr. J. D. Hooker, who obtained them from St. Helena. The plant is interesting from its limited and peculiar locality, being, as far as at present known, only found wild in that island. It thrives in a very dry greenhouse, potted in sandy loam and peat, with plenty of drainage. Its delicately white flowers and pale glaucous-green leaves give the plant a peculiar and attractive aspect.—W. W. S.

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W.H. Fitch. del. et lith.

J.N. Fitch. imp.

Crassula torquata, Baker

TAB. 154.

Natural Order CRASSULACEÆ.

Genus CRASSULA, *Linn.*

Sect. GLOBULEA (*Haworth*). Petala erect, panduriformia, apice glandulam carnosam gerentia. Suffrutices capenses foliis subrosulatis vel confertis.

C. TORQUATA (*Baker*). Breviter caulescens, foliis confertis oblongo-spathulatis triplo vel quadruplo longioribus quam latis quadrifariis obliquis decurvatis, pallide glauco-viridibus, breviter griseo-canescens, ramorum erectis oppositis valde reductis, floribus in paniculam thyrsoidem ramis dense capitatis dispositis, calycis lobis oblongis obtusis, tubo campanulato subæquantibus, petalis flavo-viridibus panduriformibus sepalis excedentibus glandulâ rotundatâ coronatis.

A native of the Cape of Good Hope.

Stem a few inches high, and half an inch thick below the leaves. *Leaves* fifteen to twenty, laxly aggregated, quadrifariouly arranged and twisted obliquely, and much decurved, oblong-spathulate, the lower ones three to four inches long by more than an inch broad three-quarters of the way up, a quarter of an inch thick in the middle, very glaucous and covered all over, like the rest of the plant, with fine pubescence. *Flowering stem* exclusive of the panicle under a foot high, firm, erect, with a few pairs of erect much-reduced leaves adpressed to it. *Panicle* regularly pyramidal, six to nine inches long; the *lower branches* erectopatent downwards; the *bracts* small, lanceolate, very fleshy; the minute flowers in densely-rounded heads at or near the summit of the branches. *Calyx* with a campanulate cup, subtended by a boat-shaped bracteole, and five oblong obtuse divisions. *Petals* panduriform, exceeding the *sepals*, yellowish green, permanently connivent, crowned each by a conspicuous yellow gland. *Stamens* perigynous, with filiform filaments. *Hypogynous scales* quadrate, emarginate. *Carpels* a little shorter than the petals, with sessile *stigmas*.

Tab. 154.—1, portion of edge of leaf; 2, flower with bract; 3, flower with calyx taken away; 4, petal with stamen; 5, carpels and hypogynous scales: all magnified.—*J. G. B.*

This is one of Mr. T. Cooper's discoveries in South Africa, sent to me in the living state. It is a very distinct species of *Crassula*, producing numerous yellowish green flowers in roundish clusters, on a rather long flower-stem in proportion to the size of the plant. It requires the temperature of a warm, dry, airy greenhouse, and grows freely in a mixture of sandy loam and peat in well-drained pots. It is very impatient of too much water in the winter months, being very apt to rot just above the soil if kept too wet.—*W. W. S.*

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W.H. Fitch del. et lith.

J.N. Fitch imp.

Eupatorium Weinmannianum, Regel & Korrick

TAB. 155.

Natural Order COMPOSITÆ.

Tribe EUPATORIÆ.

Genus EUPATORIUM, Linn.

E. WEINMANNIANUM (*Regel et Kornicke Gartenfl.* 1867, p. 260, t. 555).

Frutex lævis ramis elongatis rectis copiose ramosis, foliis ovato-oblongis distincte petiolatis acutis leviter inciso dentatis basi deltoideo-cuneatis firmis glabris nitide viridibus, floribus in paniculam latam subcorymbosam dispositis, pedicellis gracilibus erectis leviter griseo-pubescentibus, bracteis minimis subulatis, involucris cylindraceo-campanulatis eximbricatis, foliolis 6—8 ligulatis obtusis subbiseriatis, floribus in capitulum 6—8 involucri duplo longioribus.

A native of South America, the exact country not known.

An erect copiously-branched shrub several feet high. The whole plant, except the pedicels, quite glabrous; the *branches* woody, slightly compressed, green, in exposure tinged with purple. *Leaves* in numerous opposite pairs on flattened channelled *petioles* three to four lines long, the blade ovate-oblong, acute, distantly inciso-dentate, the base entire, broad-cuneate, texture subcoriaceous, firm, the upper surface a shining moderate green, the lower rather paler with the midrib in relief. Flowers in ample terminal subcorymbose *panicles* four to six inches across. *Ultimate pedicels* erect, slender, slightly gray-downy, one line to three lines long, subtended by minute subulate *bracts*. *Involucre* between cylindrical and campanulate, two lines deep, consisting of six to eight unequal subbiserial blunt ligulate phyllaries, slightly downy on the back. *Flowers* cream-coloured with a reddish tinge, not more than six or eight in a head, more than twice as long as the involucre. *Pappus* of very numerous subequal gray scabrous bristles which slightly exceed the involucre.

Tab. 155.—1, a single capitulum; 2, a separate flower; 3, ray of pappus: all magnified.—*J. G. B.*

A plant of very free growth and easy cultivation. It flowers freely when planted in the open ground during the summer months, and for the winter treatment it only requires a slight protection from the frost. I received the plant from the garden of the late Mr. William Borrer, of Henfield.—*W. W. S.*

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W. H. Fitch del. et lith.

J. N. Eichling

Jasminum heterophyllum, Roxb.

TAB. 156.

Natural Order JASMINACEÆ.

Genus JASMINUM, Linn.

J. HETEROPHYLLUM (*Roarb. Fl. Ind. i. p. 99*). Arborescens, late vagans, petiolis prope apicem articulatis, foliis firmis coriaceis nitidis integris utrinque viridibus omnino lævibus, superioribus simplicibus ovato-cordatis, inferioribus trifoliolatis foliolis similibus, lateralibus subsessilibus, centrali petiolulato, floribus in panículas terminales subcorymbosas dispositis, pedicellis gracilibus breviter griseo-pubescentibus, calycibus campanulatis dentibus brevissimis parvis, corollis flavis, lobis oblongis obtusis tubum cylindraceum subæquantibus.—*Wall. Pl. Asiat. t. 275* ; *D.C. Prodr. viii. p. 312*.

A native of the Himalayas.

A wide-spreading shrub, the shoots in cultivation at Reigate attaining a length of ten feet in a year, straight, woody, green, terete, the young branches flexuose, the whole plant, except the pedicels, quite naked. *Lower leaves* trifoliolate. The *petioles* an inch and a half to two inches long, articulated near the apex, the central leaflet ovate-acuminate, six to eight inches long, three to four inches broad, on a petiolule six to eight lines long, the lateral ones nearly sessile, similar in shape but smaller and the base subcuneate, the texture coriaceous, the upper surface a bright dark green, the lower paler with the veins in slight relief. *Upper leaves* simple, cordate-ovate. *Flowers* in ample terminal corymbose *panicles* with often thirty to forty flowers in each. *Pedicels* erect, slender, a line to half an inch long, slightly gray-downy. *Calyx* campanulate, membranous, not more than a line deep, with five very minute teeth. *Corolla* pale yellow, protruded eight to nine lines beyond the calyx, the patent oblong obtuse lobes the same length as the slender cylindrical tube. *Stamens* and *stigmas* just reaching the summit of the tube. *Berry* the size of a pea, round, naked.

Tab. 156.—1, separate flower ; 2, corolla opened ; 3, calyx and pistil : all magnified.—*J. G. B.*

I cultivate this plant in a cool greenhouse, where, grown in strong turfy loam and allowed plenty of pot room, it grows very freely, and produces abundance of its pretty yellow flowers in rather large loose panicles. I have had it many years in cultivation. It was reared from seed furnished me by the late Dr. Royle.—*W. W. S.*

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TAB. 157.

Natural Order ASCLEPIADACEÆ.

Tribe GONOLOBEÆ.

Genus *RIOCREUXIA* (*Decaisne in D.C. Prodr.* viii. p. 140). Calyx parvus, quinquepartitus, sepalis linearibus. Corolla e basi ventricosa lagenæformis, limbi quinquefidi laciniis linearibus apice cohærentibus glabris. Gynostegium inclusum, stipitatum, obsolete pentagonum. Corona staminea biseriata, foliolis inferioribus angustis patentibus rigidiusculis subcalcaratis ad summum gynostegium insertis, superioribus antheris oppositis brevissimis. Antheræ apice simplices. Massæ pollinis erectæ, ventricosæ, apice pellucido oblique incurvato. Stigma pentagonum, obscure apiculatum. Folliculi graciles, longissimi, læves, torulosi. Semina comosa.—*Harr. Gen. Cap.* edit. 2. p. 240.

R. TORULOSA (*Decaisne loc. cit.*) Pubescens, late scandens, foliis petiolatis ovato-cordatis, floribus in umbellis 6—10-floris sessilibus vel pedunculatis dispositis.—*Ceropegia?* *torulosa*, *E. Meyer, Com.* p. 194; *Deless. Ic. Sel.* v. t. 21.

A native of Cape Colony.

Root tuberous, perennial. *Stems* attaining a length of eight or ten feet, but only annual, twining copiously, firm, round, slender, clothed upwards with fine gray pubescence. *Leaves* opposite; the *petioles* one or two inches long; the *blade* cordate-ovate, three to five inches long when fully developed by three-quarters as broad, acute, quite entire, the basal lobes deep and broadly rounded on the inner edge, the texture thin and flaccid, the colour a moderate green, both sides inconspicuously downy all over. *Flowers* in umbels of six to ten flowers each, either sessile in the axils of the leaves or one to three contiguous or a space apart on slender downy *peduncles*. *Pedicels* very slender, eight to twelve lines long. *Calyx* a line across, cut down to the base into five spreading linear *sepals*. *Corolla* flask-shaped, pale yellow, six to ten lines long, cut about a third of the way down into five setaceous lobes which cohere permanently at the tip. *Gynostegium* minute, not more than a quarter as deep as the ball of the corolla, stipitate, the corona with a row of long spur-like teeth alternate with the anthers, and a pair of much shorter ones between each of these. *Anthers* yellow, overtopping the pentagonal *stigma*. *Pollen-masses* erect, ovoid, with incurved tips.

Follicles three or four inches long, slender, incurved, naked, torulose.

Tab. 157.—1, separate flower; 2, calyx; 3, column of pistil and stamens; 4, pair of pollen-masses: all magnified.—*J. G. B.*

A very remarkable free-flowering creeper from South Africa, sent to me by Mr. T. Cooper. It grows rapidly in sandy loam and allowed plenty of pot room. The temperature of a cool greenhouse suits it well.—*W. W. S.*

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TAB. 158.

Natural Order SCROPHULARIACEÆ.

Tribe HEMIMERIDEÆ.

Genus ALONSOA (*Ruiz et Pavon, Fl. Per. p. 151*). Calyx quinquepartitus. Corolla torsione pedicelli resupinata, explanato-rotata, 5-loba, laciniis latis obtusissimis, 2 posticis (resupinatione inferioribus) brevissimis profunde solutis, anticâ maxima, fauce vix concava, rarius obscure bifossulata. Stamina 4. Filamenta brevissima; antheræ oblongæ, loculis dorso oppositis vel divergentibus apice confluentibus. Stylus apice capitato-stigmatosus. Capsula ovata vel oblonga, septicido-bivalvis, valvulis integris bifidisve. Semina punctato-rugosa.—*Benth. in D.C. Prodr. vol. x. p. 249*.

A. MATTHEWSII (*Benth. in D.C. Prodr. x. p. 250*). Foliis sessilibus vel subsessilibus parvis lanceolatis dentatis basi cuneatis, racemis strictis 6—12-floris, corollæ labio postico calyce subæquante, antico duplo longiore, antheris ovatis filamentis duplo longioribus, sepalis lanceolatis ascendentibus capsulâ duplo brevioribus.

A native of Peru.

Stems twelve to eighteen inches high, erect, with a few ascending *branches*, straight, square, and like the rest of the plant quite glabrous. *Leaves* in opposite pairs, sessile or the lowest slightly stalked, lanceolate, an inch or more long, two to three lines broad, acute, toothed, cuneate at the base, the texture firm, and both sides dark green and quite glabrous. *Flowers* in lax elongated terminal *racemes* of six to twelve flowers each, the *pedicels* erecto-patent, the lower *bracts* six to nine lines long, like the leaves in shape and texture but much smaller. *Calyx* naked, two lines deep, of five equal lanceolate divisions. *Corolla* scarlet, deeply five-cleft, the lobes all bluntly rounded, the upper one the largest, and lowest pair considerably smaller than the middle pair. *Stamens* four, equal, with erect ovate *anthers* and short thick *filaments*. *Style* filiform, with a capitate *stigma*. *Capsule* ovoid, naked, twice as long as the calyx.

Tab. 158.—1, corolla; 2, flower with corolla taken away: both magnified.—*J. G. B.*

This is a very beautiful species of *Alonsoa*, producing its brilliant flowers in abundance, and is well worthy of cultivation. It will thrive in any good garden-soil, if planted out in the open air during the summer. A cool greenhouse suits it well for winter treatment. It was raised from seed sent from Peru by Mr. Farris.—*W. W. S.*

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W.H. Fitch del. et lith.

J.N. Fitch sculp.

Lavandula abrotanoides, Lam.

TAB. 159.

Natural Order LABIATÆ.

Tribe OCIMOIDEÆ.

Genus LAVANDULA, Linn.

Sect. PSEUDOSTECHAS (*Ging. Hist. Lav.* p. 158). Folia floralia uniflora, opposita, in spica laxâ disposita, superioria non comosa. Calyx 13-nervius, subbilabiatus, labio superiore tridentato, dente medio latiore non appendiculato, inferiore bidentato. Herbæ perennes vel basi sublignosæ. Folia dentata vel inciso-multifida, rarius integerima.

L. ABROTANOIDES (*Lam. Dict.* iii. p. 429). Pallide viridis, pilosiuscula, foliis bipinnatisectis lobis secundariis brevibus anguste ligulatis parallelis, floralibus ovato-lanceolatis acutissimis, spicis elongatis laxè paniculatis. — *Benth. in D.C. Prodr.* xii. p. 146. *L. canariensis*, *Mill. Dict.* No. 4. *L. elegans*, *Desf. Hort. Par.* p. 71.

A native of the Canary Islands.

A low copiously-branched bush, the main stems quite woody, a quarter of an inch thick. Leaves densely crowded upon the lower part of the flowering branches, subsessile, ovate, deeply bipinnatifid, the largest fifteen to eighteen lines long by an inch broad, with six or eight pairs of spreading pinnæ, the upper ones simple, the lower with two or three pairs of short ligulate lobes, the texture herbaceous, the upper surface pale green, both sides thinly clothed, especially towards the midrib, with gray cottony hairs. Flowers in dense spikes half an inch to two inches long, generally one or two stalked lateral pairs beside the terminal one, on a naked rigid peduncle sometimes a foot long. Bracts scariose, ovate, rigid, acute, clasping and just equalling the sessile cylindrical purplish calyx, three teeth of which are linear, reaching not more than a sixth of the way down, and the two upper ones shorter and deltoid. Corolla a quarter of an inch long, bright purple, the upper lip deeply emarginate, the lower with three equal rounded entire lobes.

Tab. 159.—1, side view of flower with bract; 2, front view of flower; 3, corolla cut open; 4, flower with corolla taken away; 5, pistil separated: all magnified.—*J. G. B.*

I find this pretty and interesting species of Lavender grows well in a cool greenhouse during the winter, and should have

the open air in the summer. It is easy of cultivation, planted in sandy loam and a little peat, in well-drained pots, which should be kept small for the size of the plant. The leaves, when bruised, give out a strong perfume, very similar to that of common Marjoram. Mr. Thompson, of Ipswich, furnished me with this plant a few years since.—*W. W. S.*

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W.H. Fitch del. et lith.

J.N. Fitch imp.

Sideritis canariensis, Linn.

TAB. 160.

Natural Order LABIATÆ.

Tribe STACHYDEÆ.

Genus SIDERITIS, Linn.

Sect. MARRUBIASTRUM (*Moench. Meth.* 391). Frutices molliter lanati. Folia floralia herbacea, integerrima vel crenata, infima caulinis subconformia ad multo minora, suprema minuta.

S. CANARIENSIS (*Linn. Sp. Plant.* p. 573). Fruticosa, caulibus rigidis molliter griseo-lanosis, foliis cordato-ovatis leviter crenatis, supra primum tenuiter, infra semper dense adpresse griseo-lanosis venis conspicuis, racemis simplicibus, verticillastris inferioribus remotis, bracteis eis longioribus, calyce cylindraceo-campanulato lana grisea copiosa laxa vestito, dentibus cuspidatis patentibus. — *Marrubiastrum tomentosum*, *Moench. Meth. loc. cit.* *Leucophae canariensis*, *Webb, Phyt. Can.* iii. p. 103.

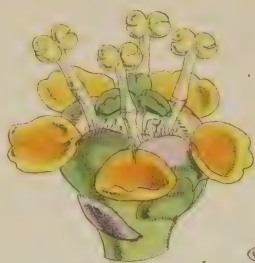
A native of the Canary Islands.

A copiously-branched bush three to six feet high. *Leaves* cordate-ovate, lax, on densely woolly *petioles* nearly as long as themselves, subacute, faintly crenate, the lower ones three inches long by half as broad, soft and pliable in texture, the upper surface at first thinly pubescent, but finally nearly or quite naked, the lower permanently matted with adpressed gray woolly pubescence, but the veins visible. *Flowers* in dense whorls extending over a space of six or nine inches, the lower ones an inch or two inches apart, their *bracts* like the leaves, which considerably exceed them, the upper whorls close, with small bracts. *Pedicels* a line long, the *bracteoles* minute and setaceous. *Calyx* cylindraceo-campanulate, a quarter of an inch deep, densely matted with loose gray wool, the teeth short, spreading, lanceolate or deltoid-cuspidate. *Corolla* pale yellow, scarcely exceeding the calyx. *Stamens* not exerted.

Tab. 160. — 1, side view of a separate flower; 2, front view of ditto; 3, corolla cut open; 4, long and short stamen; 5, pistil: all magnified. — *J. G. B.*

I raised this plant from seed collected in the Canary Islands by Dr. C. Bolle. It bears well the open air during the summer months, but should be protected from heavy rain in the autumn, and placed in an airy cool greenhouse during the winter. It grows freely in light sandy loam, and is worthy of cultivation for the peculiar coating of thick, short, wool-like pubescence which covers the stems and leaves. — *W. W. S.*

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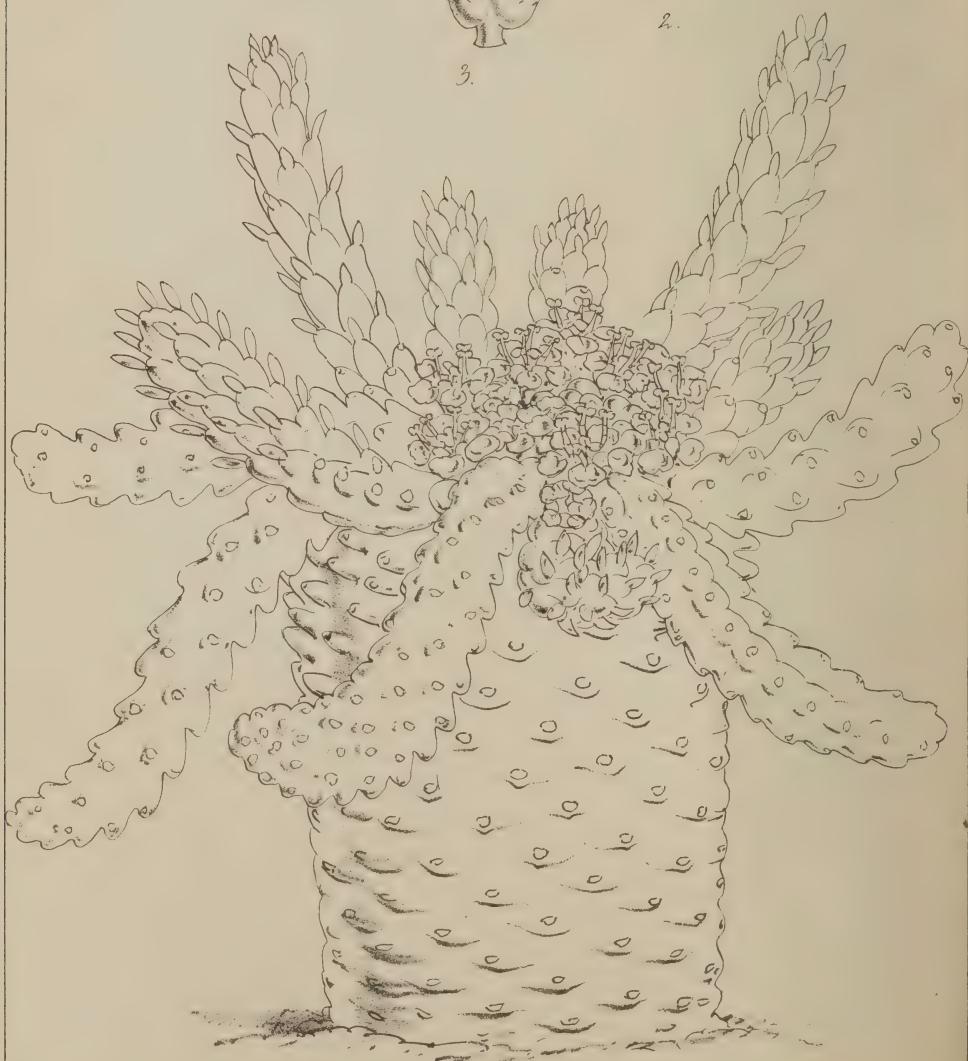
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TAB. 161.

Natural Order EUPHORBIACEÆ.

Tribe EUPHORBIEÆ.

Genus EUPHORBIA, Linn.

Section EUPHORBIIUM, Boissier.

- E. PUGNIFORMIS (Boiss. in D.C. Prodr. xiii. Part 2, p. 92). Caule primario crasso carnoso doliolato stellatim ramosissimo, ramis numerosis cylindricis teretibus undique podariis mamilloso-decurrentibus dense tuberculatis, foliis parvis linearibus carnosissimis cito deciduis, spinis nullis, involucris paucis solitariis brevissime pedunculatis bracteis paucis membranaceis late ovatis parvis instructis, glandulis rotundatis integris concavis patulis, stylis omnino connatis, capsulis hispidis. — *Euphorbium humile procumbens*, &c., Burm. Afr. p. 20, t. 10, fig. 1.

A native of Cape Colony.

Main stem barrel-shaped, three inches high and nearly as thick, firm in texture, gray in the lower part, green and papillose upwards, the centre of the flat top occupied by conical papillæ, the circumference producing numerous cylindrical spreading curving *branches* one inch to three inches in length and about half an inch in thickness. *Papillæ* projecting about a line, rounded above, rhomboidly decurrent downwards, bright green, quite glabrous and without spines. *Leaves* produced from the upper papillæ and soon deciduous, linear-lanceolate, fleshy, glaucous, a line and a half to two lines long. *Flowers* sparingly produced, solitary, on fleshy *pedicels* an eighth of an inch long. *Involucre* campanulate, an eighth of an inch broad, with a few small broad ovate membranous *bracts*, the glands bright yellow, entire, round, spreading, concave, the scales of the throat round, ciliated. *Male flowers* ten to twelve in an involucre. *Styles* connate throughout. *Capsules* hispid.

This is a plant, figured by Burmann, of which nothing has been heard for the last century, but which Mr. Cooper has now fortunately rediscovered. In general habit it agrees with *E. Caput-medusæ*, from which the entire glands of the involucre distinguish it at a glance.

Tab. 161. — 1, involucre and cluster of florets; 2, pistil; 3, stamen and bract: all magnified.—J. G. B.

This very remarkable species of *Euphorbia*, nearly allied to the well-known *Caput-Medusæ*, was sent to me from South Africa by Mr. T. Cooper. Like the other species of this peculiar group of *Euphorbia*, it requires to be grown in a mixture of sandy peat and loam in well-drained pots. It should have the protection of a warm light greenhouse, where it should be placed near the light, and only very moderately watered during the winter. —
W. W. S.

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W.H. Fitch del. et lith.

J.N. Fitch imp.

Aloe (Gasteria) planifolia, Baker

TAB. 162.

Natural Order LILIACEÆ.

Tribe ALOINEÆ.

Genus ALOE, *Linn.*Section GASTERIA, *Dur.*

- A. (GASTERIA) PLANIFOLIA (*Baker*). Foliis sub-6-jugis ligulatis, modice crassis plene distichis omnino rectis confertis erecto-patentibus utrinque complanatis basi cîte amplexicauli-dilatatis marginibus supra anguste cartilagineis inconspicue dentatis apice cartilagineo-mucronatis obscure viridibus maculis copiosis pallidioribus præditis, racemo laxo, pedicellis nutantibus bracteis duplo longioribus, perianthio deorsum ventricoso pallide rubro, sursum cîte cylindraceo, lobis parvis obtusis patulis.

A native of Algoa Bay, gathered by Mr. Cooper.

Leaves in two close regularly imbricated rows of about six each, extending over a space of about six inches on the stem, erecto-patent, seven to eight inches long above the dilated base, three-quarters of an inch broad, an eighth of an inch thick, both faces flat, the edge narrowly cartilaginous upwards and inconspicuously serrated, the point with an acute cartilaginous tip, the colour a dull green with a slight purplish tinge mottled with irregular blotches of greenish white, the suddenly dilated amplexicaul base broadly cartilaginous. *Scape* firm, terete, about a foot high before the flowers begin. *Raceme* about two feet long, the flowers lax, drooping; the *bracts* linear, about half as long as the bright red *pedicels*, the latter nearly half an inch long. *Perianth* nine to ten lines long, pale green upwards, passing downwards into pale red, the lower part ventricose, four lines thick, the oblique upper part suddenly cylindrical, the spreading lobes very small and blunt. *Stamens* and *style* filiform, not exerted. *Ovary* oblong, trisulcate.

Closely allied to *A. maculata*, Thunb. (Salmdyck, § 29, Tab. 1), which differs principally by having the leaves oblique and not regularly imbricated and distichous, and by its less distinctly ventricose perianth.

Tab. 162.—1, complete plant, reduced; 2, leaf; 3, upper part of raceme: both natural size. 4, separate flower; 5, ditto cut open; 6, pistil; 7, horizontal section of ditto; 8, stamen: all magnified.—*J. G. B.*

The species belonging to the section *Gasteria*, of the large genus *Aloe*, were formerly great favourites for greenhouse cultivation, and deservedly so, as many of them, when well-grown, have beautifully variegated leaves, and freely produce long elegant racemes of flowers, charmingly coloured with rose and salmon tints. They are not now in fashion, and are seldom seen except in collections of botanical plants, which is much to be regretted. The new species now figured is one of the most attractive kinds, with purplish green shining leaves, marked copiously with yellow-green spots, and having curiously-shaped ventricose pale rose-coloured flowers. I received the plant from Algoa Bay, where it was discovered by Mr. T. Cooper. It will thrive in a mixture of light sandy loam and peat in well-drained pots, and, like all the other species of the section *Gasteria*, it should be shaded during the summer months from the mid-day sun.—*W. W. S.*

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W.H. Fitch, del et lith.

J.N. Fitch imp.

Agave Elemeetiana, Jacobi.

TAB. 163.

Natural Order AMARYLLIDACEÆ.

Tribe AGAVEÆ.

Genus AGAVE, *Linn.*

- A. ELEMETIANA (*Jacobi, Hamb. Gart. Zeit.* xxi. p. 457). Ægre caulescens; foliis 20—25 dense rosulatis modice crasso-carnosis bipedalibus lanceolato-spathulatis quadruplo longioribus quam latis cuspidi molli munitis marginibus omnino integris utrinque glaucoviridibus extrorsum applanatis, deorsum dorso convexis, scapo (spica inclusa) 14-pedali, bracteis floribus clausis breviter pedunculatis æquantibus, perianthii segmentis oblongo-spathulatis pallide flavoviridibus tubo brevioribus, staminibus basi segmentis insertis corolla tota longioribus.

A native of Mexico.

Not caulescent or only very slightly so. *Leaves* twenty to twenty-five in a dense rosette, moderately firm in texture, lanceolate-spathulate, rather over two feet long when fully developed by six inches broad in the middle, the central ones ascending, the lower ones horizontal, the point acute but not rigid, the colour a uniform pale glaucous-green, the edge continuous in substance with the rest and not at all toothed or filiferous, the lower half slightly spathulately narrowed, the base clasping the stem to a breadth of four inches, the upper half nearly flat on the back, the lower becoming decidedly convex. *Scape* with the spike fourteen feet high, the *spike* ten to eleven feet long by seven to eight inches thick if the stamens are included in the measurement. *Bracts* equalling the flowers, linear-setaceous, dilated just above the base, those of the barren part of the scape copious and squarrose. *Pedicels* robust, a quarter of an inch long. *Corolla* sixteen to eighteen lines long, the oblong-spathulate pale yellowish green lobes decidedly shorter than the clavato-cylindrical green tube. *Stamens* two inches long, inserted at the base of the lobes.

Tab. 163.—1, complete plant, much reduced; 2, leaf, reduced; 3, pair of flowers with bract, natural size. 4, separate flower, cut open; 5, horizontal section of ovary: both magnified.—*J. G. B.*

I am indebted to the Royal Horticultural Society for this fine, distinct and interesting species of *Agave*. I received it from

Chiswick many years since, and I was informed it came from Mexico. It belongs to the soft-leaved section, the species of which as a rule do not bear exposure to the open air in this country without injury. The foliage of the plant is very peculiar for an *Agave*, the leaves being of a glaucous-green colour, and their margins quite smooth. After flowering the plant died, but I was able to secure some good seeds, which vegetated freely. The plant was kept in a light well-ventilated greenhouse, and was much admired for its compact habit and the regular way the leaves were disposed. A mixture of turfy loam, sand and peat, seemed to suit the plant admirably, taking care the pot be well drained.—*W. W. S.*

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TAB. 164.

Natural Order AMARYLLIDACEÆ.

Tribe AGAVEÆ.

Genus AGAVE, *Linn.*

- A. FILAMENTOSA (*Salmdyck, Bonpland. vii. p. 94*). Acaulis, foliis numerosis dense rosulatis sesquipedalibus strictis lineari-ensiformibus rigide mucronatis margine longe fibrillosis, supra planiusculis, dorso rotundatis, scapo (spica inclusâ) 10—12 pedali, bracteis floribus clausis breviter pedunculatis æquantibus, periantho supra germinem longe gamophyllo, segmentis lanceolatis reflexis tubo toto triplo brevioribus, staminibus basi segmentorum insertis corolla tota brevioribus.—*Jacobi, Agav. p. 36.*

A native of Mexico?

Not at all caulescent. *Leaves* in a dense many-ranked basal rosette, sixteen to eighteen inches long, fifteen lines broad half-way up, linear-ensiform, flat on the upper surface, rounded on the back, spreading out into a broad rounded dilatation at the base, slightly narrowed below the middle, narrowed gradually from the middle upwards to a sharp reddish-brown pungent point, rigid in texture, both surfaces dull green, the upper leaves nearly erect, the lowest horizontal, the edge with colourless fibres separating from it which attain a length of six or seven inches. *Scape* including the *spike* ten to twelve feet high, the barren and fertile parts about equal, the bract-like leaves of the barren part seven to eight inches long. *Spike* five to six feet long, six to seven inches in thickness including the stamens. *Bracts* purplish red, about equalling the closed flowers. *Pedicels* very short and thick. *Corolla* eighteen to twenty-one lines long, constricted above the green *ovary* and united for a considerable space above it, the purplish lanceolate lobes reaching about a quarter of the way down and reflexed when the flower is expanded. *Stamens* considerably shorter than the corolla, inserted just below the base of the lobes.

Tab. 164.—1, rosette of leaves before flowering; 2, complete plant: both much reduced. 3, apex of leaf; 4, flowers with bract: both natural size. 5, horizontal section of ovary, magnified.—*J. G. B.*

This is an interesting species, running into several varieties, distinguished by the length of the leaf and the character of the

fibres on the margin. I have grown it for many years, and some of the varieties I have received from Mexico, but not exactly the one figured, the native country of which is unknown to me. I believe it to be of Mexican origin. It requires the same soil as *A. Elemeetiana*, and much the same treatment, except that if the weather is dry and warm during August and September it may be safely put into the open air.—*W. W. S.*

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W.H. Fitch del. et lith.

J.N. Fitch, imp.

Libertia ixioides, Spreng.

TAB. 165.

Natural Order IRIDACEÆ.

Genus LIBERTIA (*Spreng. Syst. Veg. i. p. 168*). Perianthium 6-phyllum, laciniis patentibus obtusis, exterioribus minoribus. Stamina 3, limbi imo inserta, antheris ovatis, versatilibus. Ovarium trigonum, triloculare, ovulis plurimis biseriatis, stigmatibus 3, filiformibus. Capsula obovata, loculicide trivalvis. Semina plurima, angulata. Herbæ foliis rigidis equitantibus, floribus albis paniculatis, ramis umbellatis.

L. IXIODES (*Spreng. loc. cit.*) Elata, foliis rigidis anguste linearibus nervo medio lato complanato, margine distincte brunneo, scapis foliis pæne æquantibus, superne paniculatis ramis umbellatis, umbellis 2—10-floris, perianthii foliis exterioribus albis oblongis obtusis, interioribus late ovatis duplo brevioribus subviridibus apice ciliatis.—*Hook. fil. New Zealand Flora, i. p. 252.*

A native of New Zealand.

Stems copiously produced from a short creeping *rhizome* with fibrous *roots*. *Leaves* in dense subdistichous tufts with the flowering-stem from the centre, rush-like in texture, erect, narrow-linear, a foot or more long, a quarter of an inch broad, with numerous fine parallel raised veins, the edge cartilaginous, entire, abruptly brown, the midrib broad, thick, flat and paler than the rest, the upper third narrowed gradually to a point. *Flowering-stems* firm, erect, about equalling the leaves, the *flowers* in copious panicles with erecto-patent umbellate branches. *Bracts* narrow-linear, the lowest above an inch long. *Pedicels* six to eight lines long, pinkish, articulated at the apex. *Flowers* two to ten in an umbel, generally about six. *Perianth-tube* obovoid, green, two to three lines deep, the limb cut down to the base, the inner divisions oblong, obtuse, pure white, four lines deep, spreading almost horizontally when fully expanded, the outer ones more herbaceous and not more than half as long. *Filaments* slightly connate at the base. *Capsule* obovoid, three-eighths to half an inch deep, the subtriquetrous *seeds* copiously biseriate in the cells.

Tab. 165.—1, portion of leaf; 2, front view of flower; 3, pistil and stamens; 4, single stamen: all magnified.—*J. G. B.*

A neat and pretty species of *Libertia*, flowering and seeding very freely. It thrives in a mixture of loam and peat, and requires the protection only of a cold frame in the winter. I obtained my plants some years since from Messrs. Maule & Son, of Bristol.—*W. W. S.*

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W. H. Eitch del et lith.

J. N. Eitch imp.

Commelyna glabra, G. E. Meyer.

TAB. 166.

Natural Order COMMELYNACEÆ.

Genus COMMELYN, Linn.

C. GLABRA (*G. F. Meyer, Fl. Esseq.* p. 22). Suberecta, glabra vel subglabra, foliis glabris lanceolatis, spathis ovato-acuminatis complicatis, pedicellis geminatis, uno sterili deciduo, altero racemum scorpioideum 6—8-florum ægre exsertum ferente, sepalis duobus majoribus alte connatis, petalis rotundatis æqualibus sessilibus.—*Kunth, Enum.* iv. p. 42.

Widely dispersed in Tropical America.

Stems ascending, a foot and a half to two feet long, two or three times branched with ascending glabrous or very nearly glabrous branches. *Sheaths* six to nine lines long, membranous, tinged with pink, sometimes ciliated at the neck. *Leaves* lanceolate, pale green, glabrous, grass-like in texture, the largest three to four inches long by six to nine lines broad three-quarters of the way down. *Peduncles* several to a branch, slender, ascending, both axillary and terminal, six to twenty-four lines long. *Spathes* folded together in two equal halves, ovate-acuminate, spreading horizontally or slightly decurved, glabrous, an inch or rather more in length. *Pedicels* two to a spathe, one barren and deciduous, the other producing a scarcely exserted scorpioid raceme of six to eight flowers. *Sepals* green, membranous, one lanceolate, the other two larger and connate more than half-way up. *Petals* round, equal, bright blue, sessile, very delicate in texture and fugacious. *Stamens* as in all the other species, three fertile and oblong-sagittate, three barren and unequally four-lobed.

Tab. 166. — 1, single flower; 2, pistil and stamens; 3, a barren and fertile stamen; 4, flower with corolla taken away; 5, ovary: all magnified.—*J. G. B.*

The bright blue of the flowers of this plant is very striking, and as the flowers are produced freely the species is well worth growing. It thrives well, planted either in a large pot or placed in the open ground during the summer months. It must have a cool greenhouse treatment during the winter. The plant originated with me from seed sent from Peru by Mr. Farris.—*W. W. S.*

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W. H. Fitch del. et lith.

Callipsyche aurantiaca Baker

J. N. Fitch imp.

TAB. 167.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLÆ.

Genus CALLIPSYCHE (*Herb. Bot. Reg.* 1842, *Misc.* p. 49). Perianthium tubo declinato, limbo regulari a latere compresso, lobis exterioribus cymbiformibus, interioribus latioribus, apice subreflexis, antico genitalia initio deflexa amplectente. Filamenta libera, filiformia, basi tuberculata, ad basin limbi inserta, declinata, longe exserta. Stylus filiformis, declinatus, apice recurvato. Stigma rotundato-dilatata. Ovarium obtuse triquetrum. Ovula in loculis copiosa, biseriata.

C. AURANTIACA (*Baker*). Foliis oblongis acutis triplo longioribus quam latis utrinque costam 9—10-nervatis, scapo bipedali, umbellis 5—6-floris, perianthio biunciali pedicello quadruplo longiore, ovario ventricoso trisulcato, tubo supra ovarium campanulato, foliolis limbi aurantiacis, staminibus corolla tota duplo longioribus.

A native of South America, the exact country not known.

Root a tunicated bulb with brown membranous coats. *Leaves* on a short thick *petiole*, oblong, acute, cuneate at the base, not fully developed till the plant has done flowering, then about six inches long by a third as broad, bright green, moderately thick in texture, with nine to ten conspicuous veins on each side of the midrib. *Stem* nearly two feet high, firm, erect, terete, with a slight glaucous bloom. *Flowers* five to six in an umbel subtended by several linear membranous *bracts*. *Pedicels* finally half an inch long. *Ovary* ventricose, green, trisulcate, three lines long, with a campanulate tube above it about as long, the lobes bright yellow, eighteen to twenty-one lines long, the inner ones three-eighths of an inch broad, the outer rather less. *Stamens* curled up in the perianth before it expands, inserted at the throat of the tube, three inches long, filiform, nearly equal. *Style* slightly exceeding the stamens and more incurved at the point. *Capsule* sagittately trisulcate, with lobes half an inch deep.

Tab. 167. — 1, lower part of flower; 2, horizontal section of ovary; 3, stigma: all magnified. 4, fruit with faded stamens and perianth, natural size.—*J. G. B.*

The genus *Callipsyche* is one of the most remarkable in the order *Amaryllidaceæ*. It was established by Herbert in 1842, and in the Bot. Reg. vol. xxxi. 1845, is figured the *C. eucrosioides*, the only representation of the genus I am aware of. I have now much pleasure in bringing forward figures of two very distinct and striking species in this and the following plate. I am indebted to Mons. Linden, of Brussels, for *C. aurantiaca*, but I am not aware of its native country. The flowers are much flattened sideways, giving them a very unusual appearance. The bulb has been grown in a mixture of sandy loam and leaf-mould, with good drainage. It requires the temperature of a warm pit or greenhouse, and should have plenty of moisture while growing, and while resting it should never be quite dry at the roots.—
W. W. S.

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TAB. 168.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLEÆ.

Genus CALLIPSYCHE, *Herb.*

C. MIRABILIS (*Baker*). Foliis oblongo-spathulatis acutis duplo longioribus quam latis utrinque costam 20-nervatis, scapo tripedali antice sulcato, floribus in umbellis sub-30-floris conferte horizontaliter biseriatis dispositis, perianthio unciali pedicello non duplo longiore, ovario oblongo, tubo supra ovarium campanulato, foliolis limbi pallide flavo-viridibus, staminibus corollâ totâ triplo longioribus.

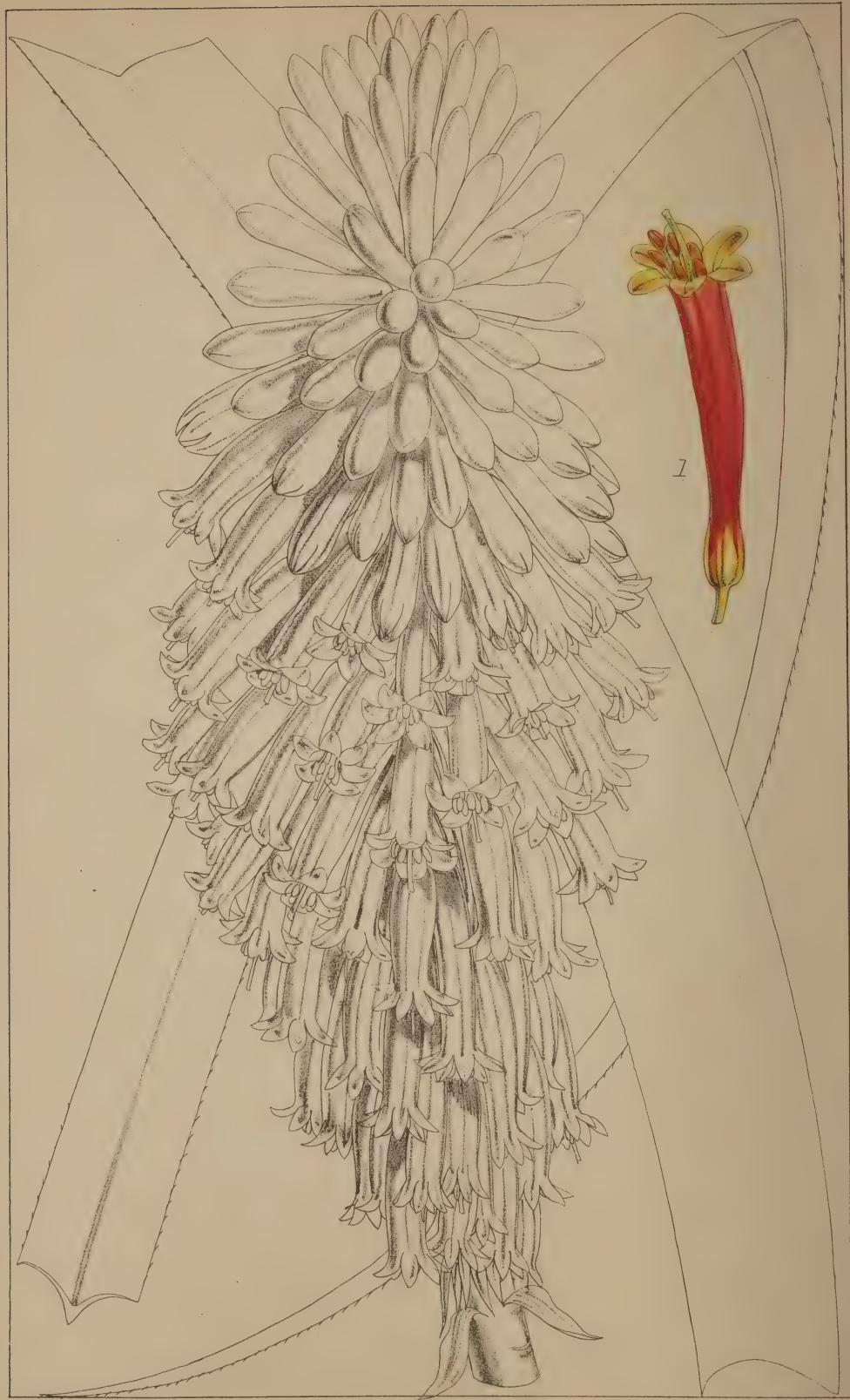
A native of Peru.

Bulb oblong, tunicated, two inches in diameter, with brown membranous coats. *Leaves* two, one produced after the other about the time when the plant flowers, the *petiole* stout, sub-erect, clasping the stem at the base, ultimately a foot long, the blade oblong-spathulate, a foot long by five to six inches broad two-thirds of the way down, narrowed from the middle to an acute point, the texture moderately thick and firm, the midrib thick and much raised in the lower part, with about twenty distinct veins on each side of it, the upper surface bright green, the lower paler, the edges revolute. *Scape* three feet high, quite erect, hollow in the middle, fluted down the face, six to nine lines in thickness. *Flowers* about thirty in an umbellate head, spreading horizontally in all directions from the centre in two close irregular rows, subtended by five to six small linear membranous *bracts*. *Pedicels* eight to nine lines long. *Flowers* an inch long, the *ovary* green, oblong, three lines long, the campanulate tube above it equalling it, the divisions oblong, pale greenish yellow, six lines deep. *Stamens* and *style* subequal, filiform, declinate, recurved at the apex, finally above three inches long.

Tab. 168.—1, whole plant, except the root, much reduced; 2, leaf; 3, head of flowers and upper part of scape; 4, separate flower; 5, ditto, with perianth and four stamens cut away: all natural size. 6, base of two filaments; 7, ovary and base of style; 8, horizontal section of ovary: all magnified.—*J. G. B.*

This species is from Peru, and I am indebted to M. Linden, of Brussels, for having kindly furnished me with a bulb. When in flower its aspect is most remarkable, — more curious than beautiful. A long upright flower-stem is furnished above with a head of numerous pale greenish yellow flowers, spreading almost at right angles from their support, each flower having long, somewhat declined, much protruding stamens. The general appearance of the head of flowers is that of an expanded parasol. It requires the same soil and treatment as *C. aurantiaca*, in the foregoing plate.—*W. W. S.*

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W.H. Fitch, del et lith.

J. N. Fitch, imp.

Kniphofia praecox, Baker.

TAB. 169.

Natural Order LILIACEÆ.

Tribe HEMEROCALLIDEÆ.

Genus KNIPHOFIA, *Moench.*

K. PRÆCOX (*Baker*). Foliis bipedalibus ensiformibus deorsum 1 poll. latis pallide viridibus marginibus subtiliter denticulatis carinâ lævi, scapo foliis subduplo brevior, racemo præcoci oblongo-lanceolato denso 40—60-floro, pedicellis perigoniiis 7—8-plo brevioribus, bracteis lanceolatis acutis pedicellis duplo vel triplo longioribus, perigonio sesquipollicari supra ovarium leviter constricto, staminibus mox perigonio æquantibus.

A native of the Cape of Good Hope, discovered and introduced by Mr. Cooper.

In general habit, texture of leaf, and the mode of arrangement and colour of its flowers, agreeing with the species of the genus which have been already published. *Leaves* two feet or rather more long, acutely keeled throughout, so that the two halves meet nearly at a right angle, the edge finely denticulate, the keel smooth, the lower part an inch broad, the upper part narrowed gradually to a long acuminate point, the colour of both sides a pale but not at all glaucous green. *Scape* erect, terete, four to five lines in thickness, fifteen to eighteen inches high exclusive of the raceme. *Raceme* four to six inches long, three inches broad when expanded, densely forty- to sixty-flowered. *Developed pedicels* cernuous, two lines long, subtended by lanceolate acute *bracts* two or three times their length. *Perianth* sixteen to eighteen lines long, bright red in sunlight, passing to bright yellow scarcely tinged with red in the flowers which the sun does not reach, a uniform slender tube two to two and a half lines thick except that it is slightly constricted above the ovary, the divisions oblong-deltoid, an eighth of an inch deep, the *stamens* subequal and just reaching at last to its mouth.

This flowers much earlier than in any of the previously-known species, being in full perfection at Reigate by the middle of May. In the pedicels, bracts, and shape of the perianth, it comes very near the old well-known *K. Uvaria*, of which there is an excellent figure in Bot. Mag. t. 4816, but the leaves are broader and not at all glaucous, the raceme is shorter, the scape not more

than half as long as the leaves, and the stamens in the fully-developed flower only just reach its throat. So that in character it comes about midway between *K. Uvaria* and *K. Rooperi* (Lemaire, Jard. Fleur. iv. t. 362), with neither of which it is, however, likely to be confounded by gardeners, because of its different season of flowering.

Tab. 169.—1, separate flower, natural size.—*J. G. B.*

This is an ornamental plant, well worthy of cultivation, flowering with me very much earlier in the season than any other species of the genus to which it belongs. It is hardy, and, flowering early, is valuable for mixed flower-borders. The plant will grow in any good garden soil, and likes plenty of manure. I received it from Mr. T. Cooper, who found it growing in South Africa.—*W. W. S.*

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W. H. Fitch, del et lith.

J. N. Fitch, imp.

Lachenalia pallida, Ait.

TAB. 170.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus LACHENALIA, Jacq.

L. PALLIDA (*Ait. Kew*, i. p. 460). Foliis geminatis lanceolatis falcato-patulis carnosio-herbaceis 4—6-plo longioribus quam latis, scapo tereti erecto foliis æquante, floribus 12—30 erecto-patentibus subdense spicatis, perigonio tubuloso pollicari 4-plo longiore quam crasso, laciniis interioribus spathulatis ore patulis exterioribus tertia excedentibus, staminibus mox perigonio æquantibus. — *Kunth*, *Enum.* iv. p. 284; *Lindl. Bot. Reg.* t. 1350.

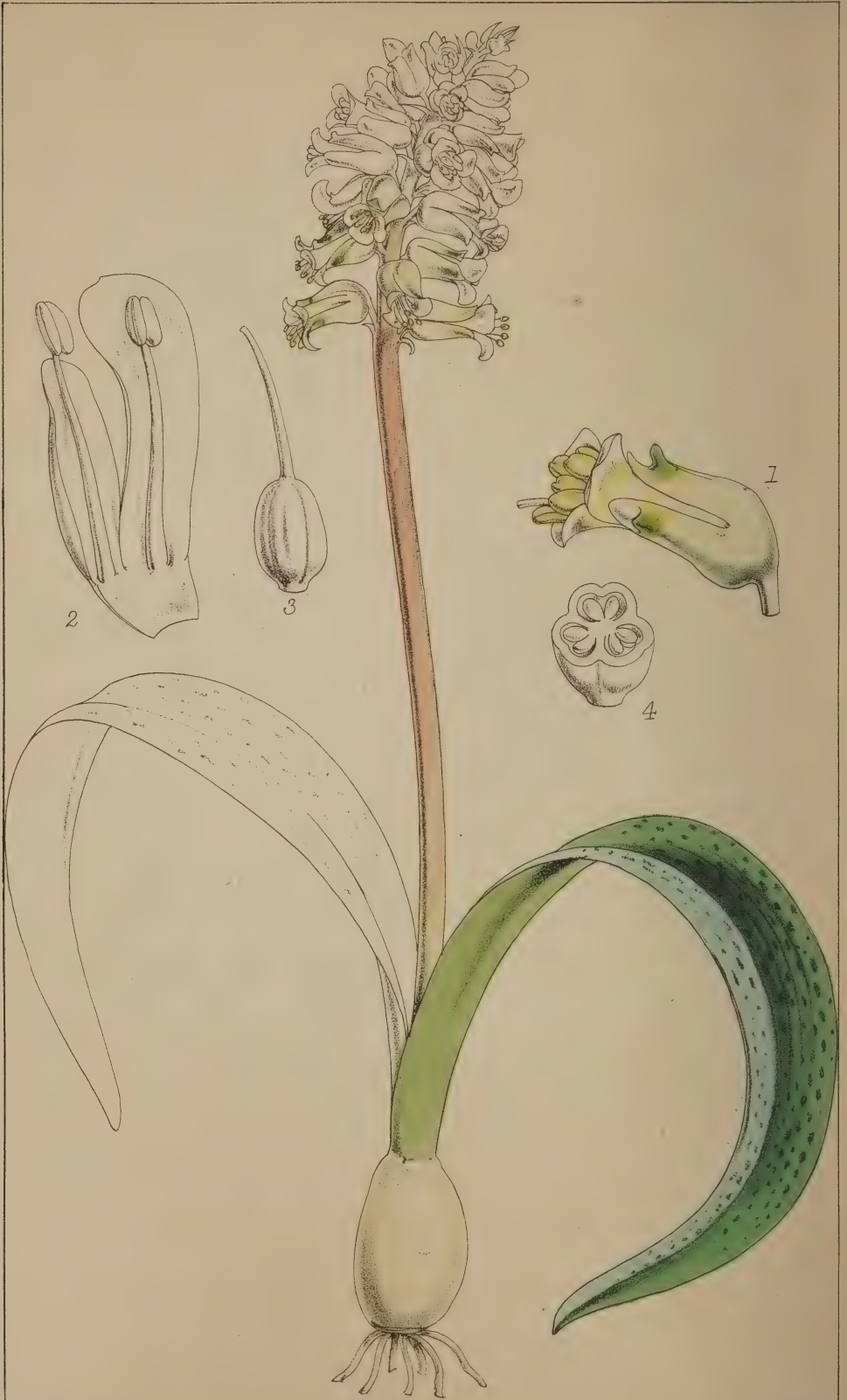
A native of the Cape of Good Hope.

Bulb round, white, tunicated, under an inch in thickness. *Leaves* two, clasping the base of the stem, lanceolate, fleshy in texture, four to six inches long by an inch broad at the middle, a moderate not glaucous green, not at all or only very faintly spotted with deeper green, much paler on the lower surface, spreading and flat above the clasping base. *Scape* terete, erect, four to six inches long, usually more or less blotched with reddish purple. *Flowers* twelve to thirty in a moderately dense *spike* two to four inches long by nearly two inches broad when fully expanded, the uppermost few barren and dwarfed. *Bracts* lanceolate, membranous, three to four lines long. *Perianth* an inch deep, cut down to a shallow cup, the outer divisions about half an inch long, greenish, gibbous on the back below the point, the inner divisions reaching two to three lines beyond the outer ones, spathulate with spreading points, whitish or in the specimen figured yellowish or not unfrequently with a decided pink tinge. *Stamens* slightly declinate, at last quite as long as the inner divisions. *Style* three or four times as long as the oblong *ovary*. *Ovules* about a dozen in a cell.

Tab. 170.—1, separate flower; 2, inner and outer petal, with two stamens; 3, pistil; 4, horizontal section of ovary: all magnified.—*J. G. B.*

A neat little bulbous plant, which should be cultivated in a cool pit or greenhouse, placed, while growing, as near the light as possible. A mixture of sandy loam and peat suits the plant well. It requires but little pot room, but should have plenty of water while growing, after which a season of rest in a moderately warm place is necessary for the health of the plant.—*W. W. S.*

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TAB. 171.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus LACHENALIA, Jacq.

L. ORCHIOIDES (*Ait. Kew. i. p. 460*). Foliis geminatis lanceolatis falcato-patulis carnosio-herbaceis 4—6-plo longioribus quam latis, scapo tereti erecto foliis subæquante, floribus 12—40 horizontaliter patulis dense subspicatis, perigonio tubuloso-campanulato semipollicari triplo longiore quam crasso, laciniis interioribus spathulatis ore patulis exterioribus distincte excedentibus, staminibus mox perigonio subæquantibus. — *Kunth, Enum. iv. p. 284; Jacq. Coll. vol. iii. p. 241; Ic. vol. ii. t. 390. L. mutabilis, Sweet Brit. Flow. Gard. ser. 2, t. 129.*

A native of the Cape of Good Hope.

Bulb ovoid, white-tunicated, three-quarters to an inch in thickness. *Leaves* two, clasping the base of the stem, four to six inches long by an inch or rather more broad at the middle, a moderate not glaucous green, not at all or only faintly spotted with deeper green, fleshy in texture, erecto-falcate, flat beyond the inner third. *Scape* four to six inches long, erect, terete, often maculate. *Flowers* twelve to forty, sessile or nearly so, in a *spike* two to four inches long by an inch to an inch and a quarter broad, spreading horizontally, the uppermost barren and dwarfed. *Bracts* lanceolate, two to three lines long. *Perianth* five to six lines long, pale or pinkish, cut down to a shallow cup, the outer divisions greenish and gibbous below the point, the inner spathulate, distinctly exceeding the outer ones and patulous at the tip. *Stamens* and filiform *style* slightly declinate, the former quite as long as the inner segments. *Ovules* ten to twelve in a cell.

The genus *Lachenalia* may be divided into four convenient sub-genera, founded upon the shape of the perianth. From the other species in which it is three or four times as long as thick, this and the preceding, with *L. glaucina* (*Bot. Mag. t. 3552*), differ by having the flowers nearly or quite sessile. The three are very near to each other, and quite agree in general habit.

Tab. 171. — 1, separate flower; 2, inner and outer petal, with two stamens; 3, pistil; 4, horizontal section of ovary: all magnified.—*J. G. B.*

This plant should be treated exactly as the last, and is a very constant flowerer.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Muscari Heldreichii Boiss.

TAB. 172.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus MUSCARI, *Tourn.*Sub-genus BOTRYANTHUS, *Kunth.*

- M. HELDREICHII (*Boiss. Diagn. ser. 2, No. 4, p. 109*). Foliis 5—6 lineari-filiformibus semiteretibus profunde canaliculatis erecto-falcatis scapo subduplo longioribus, racemo sublaxo 8—12-floro, pedicellis patulis floribus quadruplo brevioribus, perigonio saturate azureo obovato-globoso sesquilongiore quam lato, superne leviter angulato fauce ægre constricto, dentibus albis deltoideis recurvatis tubo 5—6-plo brevioribus.—*M. hymenophorum, Held. Herb. Graec. No. 662.*

A native of Greece, imported to this country by M. Orphanides. It was originally gathered on Mount Parnassus by M. von Heldreich.

Bulb ovoid, white, tunicated, six to nine lines in thickness. *Leaves* about half a dozen to a bulb, erecto-falcate, nearly or quite a foot long when fully developed, linear-filiform, semiterete, not more than an eighth of an inch broad, deeply channelled on the face, a moderate not glaucous green. *Scape* four to six inches long. *Raceme* eight- to twelve-flowered, the *pedicels* about a line long and all nearly horizontal, the uppermost *flowers* subsessile and barren. *Perianth* a bright sky-blue, obovate-subglobose, nearly a quarter of an inch deep, scarcely half as long again as thick, slightly angular upwards, very little constricted at the throat, the divisions pure white, deltoid, recurved, about a sixth as long as the tube. *Stamens, style* and *capsule* as in the other species of the section *Botryanthus*.

This handsome new species comes nearest to *M. botryoides* in the shape of the perianth, but it is considerably larger and much less constricted at the throat, and the segments are twice as large, and the raceme is not so dense and has the lower flowers scarcely at all cernuous. In the leaf it most resembles *M. neglectum*.

Tab. 172.—1, perianth; 2, the same opened: both magnified.—*J. G. B.*

I am indebted to the Messrs. Backhouse, of York, for this charming little species of *Muscari*. It is quite hardy, and to be seen in perfection it should be grown with the alpine plants, planted in good sandy loam in well-drained pots.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch imp.

Muscari grandifolium, Baker.

TAB. 173.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus MUSCARI, *Tourn.*Sub-genus BOTRYANTHUS, *Kunth.*

M. GRANDIFOLIUM (*Baker*). Foliis 5—6 ensiformibus planiusculis flaccidis carnosio-herbaceis glaucescentibus sesquipedalibus vel bipedalibus, scapo foliis quadruplo brevior, racemo denso 15—20-floro, pedicellis cernuis floribus subtriplo brevioribus, perigonio livide cæruleo oblongo-rotundato sesqui longiore quam crasso, superne nullo modo angulato, fauce distincte constricto, dentibus deltoideis albidis recurvatis tubo 5—6-plo brevioribus.

Drawn from the Kew collection. The history and precise country of the plant are not known, but the genus is restricted to the southern half of Europe, Barbary and the Orient.

Bulb roundish, an inch thick. *Leaves* five or six to a scape, ensiform, flaccid, fleshy in texture, pale glaucous-green, a foot and a half or finally two feet long, half an inch broad, the sides nearly parallel for a considerable distance and the upper part very little concave on the face. *Scape* erect, firm, terete, four or five inches high exclusive of the raceme. *Raceme* densely fifteen- to twenty-flowered, the *lower pedicels* an eighth of an inch long and drooping very much. *Perianth* roundish-oblong, a quarter of an inch deep, half as long again as broad, not at all angular in the upper half when fresh, the throat distinctly constricted. *Lower flowers* a dark livid blue, the upper ones brighter, the uppermost reduced, subsessile and abortive. *Teeth* deltoid, not pure white, recurved, about a sixth as long as the tube. *Stamens*, *ovary* and *style* as in the other species of the section *Botryanthus*. *Capsule* four lines deep, acutely trigonous. In full flower at Kew, in the open air, the last fortnight in April.

This species is on a larger scale than any of the previously described species of *Botryanthus*, and the leaves are very different to those of any of them and more like those of *M. moschatum*. The shape of the perianth is like that of *M. botryoides*, but it is considerably larger and a different colour, and the plant is a fortnight later in flower.

Tab. 173. — 1, perianth; 2, the same opened: both magnified. — *J. G. B.*

This plant was figured from a specimen grown at the Royal Botanic Gardens, Kew. It is a fine species of the genus, and I have no doubt easy of cultivation, like other *Muscari*.—
W. W. S.

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W.H. Fitch, del. et lith.

J.N. Fitch imp.

Hyacinthus candicans Baker.

TAB. 174.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus HYACINTHUS (*Linn. ex parte*). Perigonium corollinum, campanulato- vel infundibuliformi-gamophyllum, ore nullo modo constricto, laciniis falcato-recurvatis vel subrectis tubo æquantibus vel duplo-triplo brevioribus. Stamina uniseriata vel biseriata, in tubo vel ad faucem inserta, filamentis elongatis filiformibus vel brevibus cuneato-complanatis, antheris versatilibus oblongis vel linearibus. Ovarium sessile, oblongo vel rotundato-trigonum, ovulis in loculis numerosis vel paucis. Stylus filiformis erectus. Stigma capitato-trisulcatum. Capsula membranacea, sessilis, oblonga vel rotundata, acute vel obtuse trigona, loculicide trivalvis, seminibus paucis nullo modo compressis superpositis vel triquetris biseriatis numerosis. Testa nigra membranacea. Herbæ bulbosæ, foliis plerisque carnosio-herbaceis linearibus floribus racemosis speciosis.

H. CANDICANS (*Baker*). Foliis 5—6 ascendentibus lorato-lanceolatis bipedalibus vel ultra carnosio-herbaceis glaucescentibus extrorsum planiusculis, scapo erecto firmo tripedali vel ultra, racemo laxo subpedali 12—20-floro, pedicellis cernuis imis floribus subæquantibus, bracteis lanceolatis pollicaribus, perigonio sesquipollicari albo laciniis subæqualibus obovato-lanceolatis erecto-patentibus tubo infundibuliformi-campanulato subduplo longioribus, filamentis ex fauce tubi subuniseriatis laciniis brevioribus, stylo ovario subæquante, capsulâ oblonga obtuse trisulcata, seminibus triquetris biseriatis in loculis numerosis.

A native of the Cape of Good Hope, distributed in the dried collections of Drege (5529), and introduced recently in a living state by Mr. Cooper.

Bulb large, round, tunicated. *Leaves* five or six to a bulb, contemporaneous with the flowers, lorate-lanceolate, suberect with the upper part recurved, fleshy-herbaceous in texture, two to two and a half feet long by eighteen to twenty-one lines broad, clasping the base of the scape, but nearly flat in the upper part, narrowed gradually from three-quarters of the way up to an acute point, both sides a pale glaucous-green, the veins thirty to forty, visible but not raised. *Scape* firm, erect, terete, glaucous, three to four lines in thickness, three to three and a half feet long exclusive of the raceme. *Raceme* a foot long and five inches in

breadth when fully developed, with fifteen to twenty cernuous pure white *flowers*. *Lower pedicels* fifteen to eighteen lines long, each subtended by a single lanceolate membranous *bract* about an inch in length. *Perianth-tube* between campanulate and infundibuliform, half an inch deep and nearly as thick, tinged with green on the outside towards the base, the pure white subequal obovate-lanceolate divisions nearly twice as long as the tube and about half as broad as long, forming an angle of 45° with the tube when fully expanded. *Stamens* subuniseriate from the throat of the tube, the pure white *filaments* flattened at the base and much shorter than the divisions of the perianth. *Ovary* oblong, bluntly grooved, with a *style* about its own length. *Capsule* oblong, wrapped round with the faded flower, deeply bluntly three-grooved when mature, the very numerous small triquetrous biseriate *seeds* quite filling the cells. *Testa* thin, nearly black.

Tab. 174. — 1, flower cut open; 2, horizontal section of ovary: both magnified.—*J. G. B.*

This very free-flowering bulb is of great beauty, and very valuable as an ornamental plant, its large nodding white flowers, produced in an elongated spike, giving it a peculiar and graceful appearance. It succeeds well in a mixture of light sandy loam and peat, and may be grown in pots in a cool greenhouse or pit with plenty of air, or in a warm sheltered border. Mr. Thomas Cooper sent me bulbs of this plant from South Africa.—*W. W. S.*

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Hyacinthus princeps, Baker.

TAB. 175.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus HYACINTHUS, Linn.

H. PRINCEPS (*Baker*). Foliis 5—6 ascendentibus lorato-lanceolatis bipedibus carnosus-herbaceis viridibus extrorsum planiusculis, scapo erecto foliis excedente, racemo lato sublaxo 12—18-floro, pedicellis strictis erecto-patentibus imis bracteis lanceolatis duplo longioribus, floribus primum cernuis mox erecto-patentibus, perigonio albedo subsesquipollicari tubo leviter ventricoso, laciniis patulis tubo ægre æquantibus interioribus latoribus et brevioribus, filamentis infra medium tubi biseriatis longitudine perigonii tres-quadrantes æquantibus, stylo ovario paullulum longiore, capsulâ oblonga obtuse trisulcata, seminibus triquetris in loculis copiosis.

A native of the Cape of Good Hope, drawn from the living collection at Kew.

Bulb, general habit, and leaves quite similar to those of the last, but the leaves not glaucous. *Raceme* broader and shorter, the flowers at first drooping, but the capsule not at all so. *Perianth* not so pure white as in the last and not quite so large, the tube greenish on the outside, slightly ventricose, seven to eight lines deep by three-eighths of an inch in thickness, the divisions spreading horizontally when fully expanded, scarcely equalling the tube, the inner three a little shorter and broader than the outer ones. *Stamens* inserted below the middle of the tube, the pure white filaments in two contiguous rows, cuneately deltoid at the base, filiform above it, nine to ten lines long, eight or ten times as long as the fully-developed anthers. *Ovary* as in the last, but elevated on a broad torus, the *style* a little longer. *Capsule* as in the last, with the *seeds* copious and biseriate in the cells.

These are two magnificent additions to our list of cultivated *Liliaceæ*. Although so different in habit from the previously-known species of *Hyacinthus*, the principal technical difference is in the much more numerous and angular seeds. As we have characterised it on the preceding page, *Hyacinthus* includes *Bellevallia* of Lapeyrouse, *Peribæa* of Kunth, and *Strangweia* of Parlatore. The extremes differ from one another a good deal in the shape of the capsule and the number of seeds, and in the insertion and shape of the filaments, but we do not see that any

line distinct enough to separate genera can be drawn. Even these two, it will be seen, though so like one another in habit, differ materially in the structure of the flower.

Tab. 175.—1, flower cut open, magnified.—*J. G. B.*

This is another very fine bulb, well worthy of cultivation. The same treatment as recommended for the last species will suit it. The figure was drawn from a plant which flowered in the collection of the Royal Botanic Garden at Kew.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Hyacinthus orientalis L. *lusus*.

TAB. 176.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus HYACINTHUS, Linn.

H. ORIENTALIS (Linn. *Sp. Plant.* 454). *Lusus* perigonio omnino viridi valde angustato et elongato, tubo cylindraceo ultra pollicari laciniis linearibus semper erectis tubo subduplo brevioribus, ovario clavato sursum sterili sensim angustato, stylo obsoleto, filamentis valde elongatis antheris rubro-purpureis triplo-quadruplo longioribus.

This remarkable form of the common cultivated Hyacinth appeared in the garden of G. Simpson, Esq., at Reigate, in Feb. 1869. The *bulb* and *leaves* did not present any deviation from the ordinary type. The *pedicels* were erecto-patent and considerably lengthened out. *Flowers* an inch and a half to two inches long, the *perianth* within and without a uniform bright green, the hexagonal cylindrical tube exceeding the divisions, throughout scarcely more than an eighth of an inch in thickness, the permanently ascending fleshy linear divisions half to three-quarters of an inch long. *Ovary* clavato-cylindrical, nearly as long as the tube, narrowed upwards, the cells only ovuliferous in the lower half, the *style* obsolete, unless the sterile upper half of the ovary be considered to represent it, the *stigma* represented by six minute papillose knobs. The *filaments*, which in the ordinary form of the plant are scarcely at all developed, were here three to four lines long. *Anthers* linear-oblong, like those of the normal plant, reddish purple, being the only coloured portion of the flower.

We give by the side of the *lusus*, for comparison, a flower of the cultivated form which most nearly represents the original wild state of the species; and also, on the left-hand side of the plate, a single flower of the "Robert Steigar" of the ordinary shape and colour.

Tab. 176. — 1, flower cut open, slightly magnified. 2, stamen; 3, pistil; 4, horizontal section of the ovary; 5, 6, flower cut open, and separate stamen of the typical form, for comparison with the monstrosity: all magnified.—J. G. B.

The description given above by Mr. J. G. Baker is from a spike of flower which was well in bloom on the 15th of February,

1869, when the bulb showed another spike just appearing among the leaves. This spike, which my friend Mr. G. Simpson allowed me carefully to examine, was in perfection about the 20th of March, and produced twenty-three blossoms, which may be classed thus :—

Five flowers entirely green.

Twelve flowers party-coloured crimson and green, but more of the former colour.

Six flowers chiefly green, with crimson points to the sepals.

Amongst the party-coloured flowers there was one which was nearly crimson, with scarcely a trace of green, and might be said to be true to the Robert Steigar variety of the Hyacinth.

In the flowers I observed that the more they were of the crimson colour the shorter and more normal were they in shape, and also that they had a more horizontal tendency when in bloom.

One flower only of the twenty-three was found to be of the same elongated upright form as in the first spike, and this was nearly green.

I found the greatest amount of crimson-colour was developed in the lower flowers of the spike, except in three blooms which were the most abnormal both in shape and colour, and were placed nearly on the same plane on the stem; and I found also that the most normal flower was placed a very little above the three most abnormal flowers just alluded to.

I observed that the crimson-colour of the flowers was most developed on the tube of the corolla, and that pollen was perfected in one of the party-coloured flowers.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Ornithogalum canaliculatum, Baker.

TAB. 177.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus ORNITHOGALUM, Linn.

Sub-genus UROPHYLLON, *Salisb.** Flores 6—100 in racemis elongatis dispositæ. Lacinia oblongo-lanceolata, $1\frac{1}{2}$ —2 lin. lata alba distincte viridi-vittata mox recte patula. Filamenta hypogyna laciniis subduplo breviora. Stylus elongatus.

O. ACUMINATUM (*Baker*). Foliis 10—12 bipedalibus firmis anguste ensiformibus ascendentibus viridibus sursum sensim angustatis apice longe acuminatis, scapis 2—3 gracilibus foliis æquantibus, racemo elongato angustato 30—50-floro, pedicellis strictis erecto-patentibus floribus brevioribus, bracteis linearibus sesquipollicaribus, perigonio semipollicari, laciniis subæqualibus oblongis albis apice fornicatis dorso distincte viridi-vittatis, staminibus lanceolatis subæqualibus perigonio duplo brevioribus, stylo ovario æquante.

A native of the Cape of Good Hope.

Bulb round, two inches thick, with pale gray outer coats. *Leaves* ten or twelve to a bulb, clasping the scapes tightly at the base, the central ones erect, two feet long, an inch broad above the base, narrowed gradually upwards to a long acumen, moderately firm in texture, both sides pale green, the face considerably concave, with about a dozen darker ribs. *Scapes* two or three to a bulb, equalling the leaves, flexuose, terete, naked, pale green, two lines thick. *Raceme* thirty- to forty-flowered, at first three to four inches, finally a foot long, an inch broad when fully expanded. *Pedicels* erecto-patent, the lowest three to four lines long. *Bracts* linear, greenish white, the lowest fifteen to eighteen lines long. *Perianth* half an inch deep, the divisions subequal, oblong, slightly fornicate at the tip, two lines broad, spreading horizontally, pure white, with a distinct greenish keel. *Stamens* equal, lanceolate, about half as long as the divisions. *Style* as long as the oblong *ovary*. *Capsule* ovoid, three-eighths of an inch deep, bluntly trisulcate, with numerous *seeds* in each cell.


The only other published species of this sub-genus, with leaves the same shape, is *O. virens*, Lindl. Bot. Reg. t. 814, in

* Characterised by Salisbury as a genus in the fragment of his 'Genera,' p. 35, for the printing of which we are indebted to Dr. J. E. Gray.

which the leaves are more fleshy in texture, the bracts shorter, the flowers much smaller and a greenish white beyond the keel, and the stamens unequal. We have examined the original specimens of this latter, gathered by Forbes at Delagoa Bay.

Tab. 177.—1, separate flower, slightly magnified. 2, separate stamen; 3, pistil; 4, horizontal section of ovary: all magnified.—*J. G. B.*

This, like most of the species of the genus *Ornithogalum*, should be grown in rich loam, with plenty of pot room, and supplied liberally with water while growing. It requires the protection of a frame or cool greenhouse during the winter. I received my bulbs from Mr. T. Cooper, who collected them at Algoa Bay.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Ornithogalum anomalum, Baker.

TAB. 178.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus ORNITHOGALUM, *Linn.*

Sub-genus *LEDEBOURIOPSIS*, *Baker.* Perigonium imo basi gamophyllum, laciniis flore expanso falcato-reflexis. Stamina distincte perigyna. Bracteæ minutæ, deltoideæ, membranaceæ.

O. ANOMALUM, *Baker.* Bulbo globoso dimidio superiore hypogæo viridi subsquamoso, foliis 1 vel raro 2 sesqui vel bipedalibus perfecte teretibus flaccidis serpentinis glaucescentibus sursum sensim gracilioribus, scapo foliis subæquante, racemo elongato angusto laxo 30—40-floro, pedicellis strictis erecto-patentibus floribus subæquantibus apice articulatis, bracteis perparvis, perigonio pro genere parvo laciniis æqualibus lanceolato-spathulatis flavis viridi-vittatis mox falcato-reflexis, staminibus perigynis filamentis æqualibus filiformibus laciniis duplo brevioribus, stylo filiformi ovario oblongo subæquante.

A native of the Cape of Good Hope, introduced by Mr. Cooper.

Bulb round, two inches thick, with the upper half emergent, green and slightly scaly. *Leaves* one or rarely two to a bulb, flaccid, terete without a furrow, fleshy in texture, a foot and a half to two feet long, a quarter of an inch thick at the lower part, narrowed gradually to the point, a pale slightly glaucous-green. *Scape* very slender, terete, pale glaucous-green, about eighteen inches long, exclusive of the raceme. *Raceme* six to nine inches long when expanded, under an inch broad, thirty- to forty-flowered. *Pedicels* rigid, erecto-patent, articulated at the apex, two to three lines long. *Bracts* very minute. *Perianth* not more than a quarter of an inch deep, the divisions lanceolate-spathulate, equal, greenish yellow, with a greener keel, at first shortly gamophyllous at the base, reflexed when the flower expands. *Stamens* from the base of the divisions, with equal filiform filaments an eighth of an inch long. *Ovary* sessile, oblong, with numerous biseriate *ovules* in the cells. *Style* erect, filiform, quite as long as the ovary.

Besides the curious habit, this recedes from ordinary *Ornithogalum* by its reflexed perianth, not split down to the very base, perigynous filiform stamens, minute bracts, and articulated pedicels. In all these points it agrees with *O. capitatum*, Hook. fil.

Bot. Mag. 5388, which however has an exceedingly different habit. It would be much more easy to characterise *Ornithogalum* definitely if they were shut out of it. For the present we would regard them as a sub-genus of *Ornithogalum*, receding from the type towards *Scilla*, sub-genus *Ledebouria*.

Tab. 178. — 1, portion of leaf; 2, flower closed; 3, flower expanded; 4, stamen; 5, pistil; 6, horizontal section of ovary: all magnified. — J. G. B.

A remarkable plant, with but little resemblance to some species of the genus *Ornithogalum*.

Mr. Thos. Cooper sent me this bulb from South Africa, together with another allied species, *O. capitatum*, Hook. fil., figured at plate 5388 Bot. Mag., and, as Mr. J. G. Baker well observes, they do not fit into the genus *Ornithogalum* at all satisfactorily. They will probably, when we know more of the South African bulbs have special generic characters assigned to them. Both species require the same treatment as the last. — W. W. S.

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This species requires the protection of a cool greenhouse or put during the winter season, and should be grown in rich turfy loam and peat in large-sized pots.

The following require the same treatment as the species under consideration:—

Tab. 180.	<i>Scilla socialis</i>
" 181.	" <i>paucifolia</i>
" 182.	" <i>lanceifolia</i>
" 183.	" <i>ovatifolia</i>
" 184.	" <i>linearifolia</i>
" 185.	" <i>nebrina</i>
" 186.	" <i>subclausa</i>
" 187.	" <i>spatulata</i>
" 188.	" <i>floribunda</i>
" 189.	" <i>princeps</i>
" 190.	<i>Drumia robusta</i>

As will be seen by the figures, some are very interesting from their spotted leaves. They all, when properly treated, flower freely, the flower-stems being often lax and recurving.

The whole were introduced to the Hillfield garden from South Africa, by Mr. Thos. Cooper, except *S. lanceifolia*, which is an old inhabitant of our gardens, and *S. pallidiflora*.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Eitch, imp.

Scilla (*Ledebouria*) *socialis*, Baker.

TAB. 180.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA.

Sub-genus LEDEBOURIA, *Roth.* (See Appendix).

- S. SOCIALIS*, *Baker.* Bulbis ovoideis gregariis dimidio superiore epigæo, foliis 3—4 carnosio-herbaceis horizontaliter patulis synanthiis oblongo-lanceolatis acutis 2—3 pollicaribus pallide viridibus maculis saturatioribus, scapo flexuoso foliis æquante, racemo denso conico 20—30-floro, pedicellis valde cernuis floribus brevioribus, laciniis 3 lin. longis omnino viridibus basi extrorsum ægre purpureo tinctis, filamentis tresquadrantes longitudinis laciniarum attingentibus, dimidio superiore purpureo, ovario latiore quam alto, basi discoideo valde ampliato.

A native of the Cape of Good Hope, discovered by Mr. Cooper.

Bulbs ovoid, densely gregarious, fifteen to eighteen lines thick, the upper half emergent and subsquamose. *Leaves* three to four to a scape, contemporaneous with the flower, spreading horizontally, fleshy in texture, oblong-lanceolate, acute, two to three inches long by an inch broad three-quarters of the way down, pale green copiously blotched with deeper green. *Scape* terete, flexuose, just equalling the leaves, not maculate. *Raceme* dense, conical, an inch and a half to two inches long by an inch broad when in flower, twenty- to thirty-flowered. *Bracts* minute, as in all the other species of the sub-genus. *Pedicels* very cernuous, a line and a half to two lines long. *Perianth* a quarter of an inch deep, the divisions ligulate-lanceolate, green on both sides, only slightly tinged with purple on the outside at the base. *Filaments* two lines long, the upper half bright purple. *Ovary* distinctly stipitate, much broader than deep, the base discoidly dilated and six-lobed. *Cells* as in all the neighbouring species, with two collateral ascending *ovules* in each.

Tab. 180.—1, separate flower; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

For treatment see Tab. 179.—*W. W. S.*

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TAB. 181.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, Linn.

Sub-genus LEDEBOURIA, Roth. (See Appendix).

S. PAUCIFOLIA, Baker. Bulbis ovoideis gregariis dimidio superiore epigæo subsquamoso, foliis 2 vel raro 3 synanthiis carnosio-herbaceis horizontaliter patulis oblongo-lanceolatis acutis 2—3-pollicaribus pallide glauco-viridibus maculis saturationibus notatis, scapo flexuoso foliis excedente, racemo laxo oblongo 20—30-floro, pedicellis substrictè patentibus floribus cernuis duplo longioribus, laciniis 3 lin. longis albido-viridibus extrorsum basi haud vel ægre purpureo tinctis, filamentis tresquadrantes longitudinis laciniarum attingentibus dimidio superiore purpureo, ovario latiore quam alto, basi paullulum ampliato.

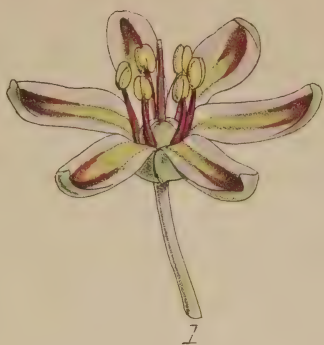
A native of the Cape of Good Hope, discovered by Mr. Cooper.

Bulbs ovoid, densely clustered, fifteen to eighteen lines thick, the coats gray, the upper half emergent and subsquamose. *Leaves* two or rarely three to a scape, contemporaneous with the flower, fleshy in texture, spreading horizontally, but the base rolled tightly round the base of the scape, oblong-lanceolate acute, two to three inches long, pale bright glaucous-green mottled with deeper green. *Scape* terete, arcuate, pale green, not maculate, slightly exceeding the leaves. *Raceme* lax, oblong, twenty- to thirty-flowered, three to four inches long by an inch and a half broad when fully expanded, the *pedicels* rigid, horizontal, three-eighths to half an inch long. *Flowers* cernuous, three lines deep, the divisions pale green, whitish towards the edges on the outside, not at all tinged with purple or with the faintest possible tinge outside at the bottom of the cup, spreading from half-way down when fully expanded. *Filaments* erect, filiform, two lines long, the upper half bright purple. *Ovary* distinctly stipitate, less dilated at the base than in most of its allies, deeply six-grooved, the filiform purple *style* exceeding the stamens.

Tab. 181.—1, separate flower; 2, pistil: both magnified.—J. G. B.

For treatment see Tab. 179.—W. W. S.

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TAB. 182.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, Linn.

Sub-genus LEDEBOURIA, Roth. (See Appendix).

S. LANCEÆFOLIA, Baker. Bulbis magnis ovoideo-rotundatis dimidio vel tertio superiore epigæo subsquamoso, foliis 7—8 synanthiis carnosoherbaceis ascendentibus ovato-lanceolatis 4—5 poll. longis basi paululum angustatis acutis pallide glauco-viridibus maculis saturatioribus, scapis 2—3 arcuatis foliis brevioribus, racemo oblongo subdenso 30—40-floro, pedicellis floribus duplo longioribus inferioribus cernuis, laciniis purpureo-viridibus 3 lin. longis, filamentis laciniis triente brevioribus dimidio superiore purpureo, ovario distincte stipitato, basi discoideo valde ampliato. — *Lachenalia lanceæfolia*, Jacq. Ic. t. 402; Redouté, Lil. t. 59; Bot. Mag. t. 643. *Drimia lanceæfolia*, Gawl. Bot. Mag. sub. t. 1380; Kunth, Enum. iv. p. 339. *D. acuminata*, Lodd. Bot. Cab. t. 1041.

A native of the Cape of Good Hope, and apparently much the commonest of the species, Dregé, 8617! Burchell, 2305! Natal, Sanderson! Krauss, 464! Plant, 102! Kaffirland, Dr. Gill!

Bulb an inch and a half to two inches thick, the upper half or third emergent and subsquamose. *Leaves* seven or eight to a root, contemporaneous with the flowers, ovate-lanceolate, four or five inches long, an inch and a half to two inches broad three-quarters of the way down when fully developed, ascending, clasping the base of the scapes, fleshy in texture, pale glaucous-green blotched with deeper green. *Scapes* one to three to a bulb, arcuate, terete, shorter than the leaves. *Raceme* moderately dense, twenty- to forty-flowered, two to three inches long in flower by an inch and a half broad, the *pedicels* slender, half an inch long, the lower ones cernuous, subtended by minute linear or lanceolate bracts. *Perianth* a quarter of an inch deep, the purplish green divisions reflexed from three-quarters of the way down when fully expanded. *Stamens* filiform, erect, two lines long, the upper half bright purple. *Ovary* distinctly stipitate, with the base dilated and distinctly six-grooved, the filiform purple *style* two lines long.

Tab. 182.—1, separate flower; 2, pistil: both magnified.—J. G. B.

For treatment see Tab. 179.—W. W. S.

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Scilla (Ledebouria) ovatifolia, Baker.

TAB. 183.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, *Linn.*Sub-genus LEDEBOURIA, *Roth.* (See Appendix).

S. OVATIFOLIA, *Baker.* Bulbis magnis ovoideo-rotundatis dimidio superiore epigæo subsquamoso, foliis 4—5 synanthiis ascendentibus carnosio-herbaceis cordato-ovatis bi-tripollicaribus subobtusis pallide glauco-viridibus maculis saturatioribus notatis, scapis 2—3 arcuatis foliis brevioribus, racemo oblongo-conico denso 30—40-floro, pedicellis cernuis floribus ægre excedentibus, laciniis purpureo-viridibus 3 lin. longis, filamentis laciniis triente brevioribus dimidio superiore purpureo, ovario distincte stipitato, basi discoideo ampliato.

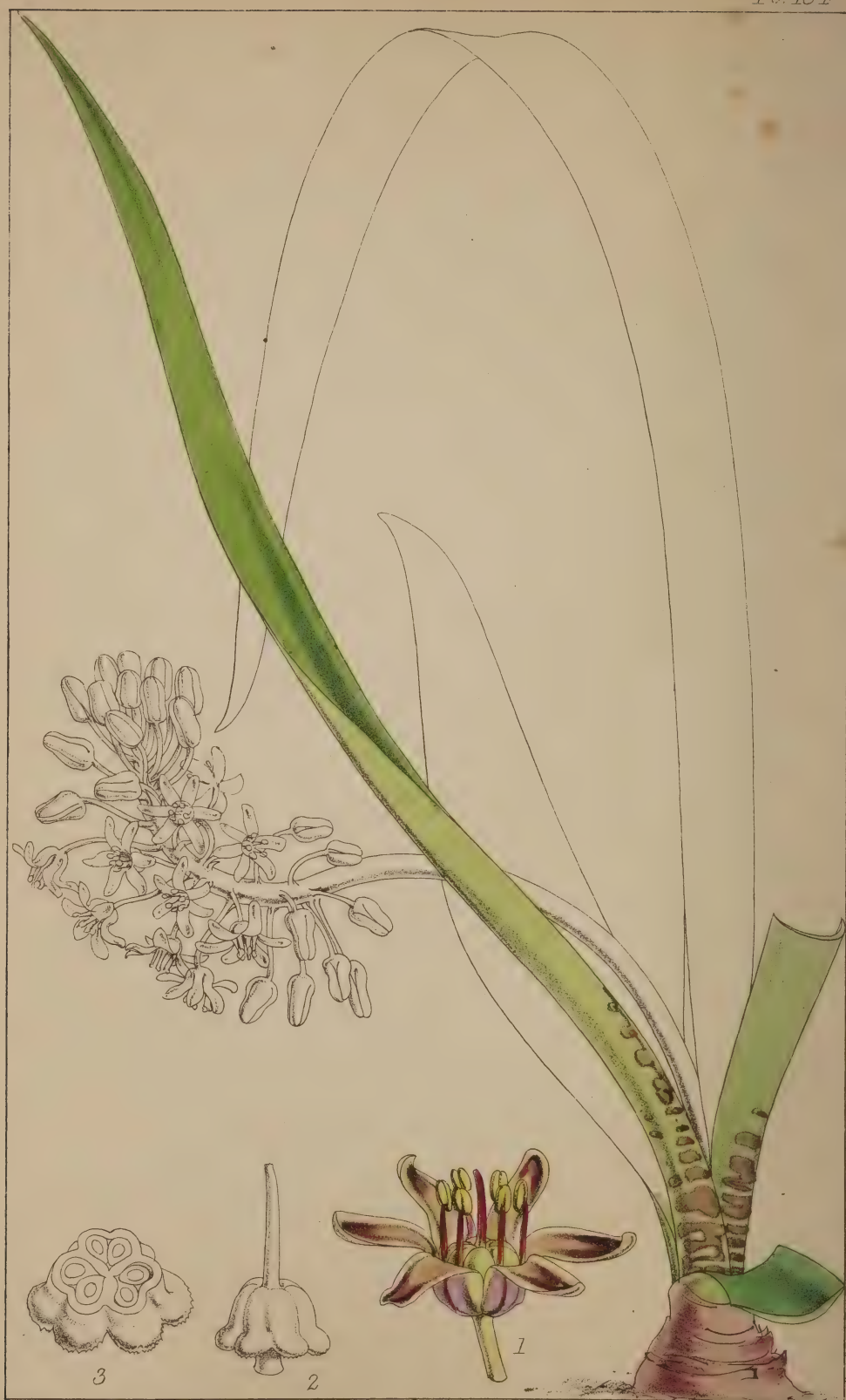
Introduced from Natal by Mr. Cooper.

Very near the last, and perhaps only a variety of it. *Bulbs* round, two inches in thickness, the upper half emergent and subsquamose. *Leaves* four or five to a root, ascending, fleshy-herbaceous, cordate-ovate, two to three inches long by eighteen to twenty-one lines broad when fully-developed, bluntish, clasping the scapes at the base, pale glaucous-green with deeper green spots above, very pale glaucous and not spotted beneath. *Scapes* one to three from a root, arcuate, two to three inches long. *Raceme* densely thirty- to forty-flowered, the lower *pedicels* cernuous, rather shorter than in the last. *Flower*, *stamens* and *ovary* just the same as in *S. lanceæfolia*.

Tab, 183.—1, separate flower; 2, pistil: both magnified.—*J. G. B.*

For treatment see Tab. 179.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Scilla (Ledebouria) linearifolia, Baker.

TAB. 184.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, Linn.

Sub-genus LEDEBOURIA, Roth. (See Appendix).

S. LINEARIFOLIA, Baker. Bulbo ovoideo subhypogæo tunicato, foliis 4—5 erectis, carnosio-herbaceis synanthiis subpedalibus anguste linearibus acutis pallide viridibus basi dorso paullulum purpureo maculatis, scapo arcuato foliis subtriplo brevior, racemo oblongo subdenso 30—40-floro, pedicellis patentibus floribus duplo longioribus, laciniis livide purpureis 3 lin. longis, filamentis laciniis triente brevioribus, dimidio superiore purpureo, ovario distincte stipitato basi discoideo ampliato.

A native of the Cape of Good Hope, introduced by Mr. Cooper.

Bulb ovoid, an inch and a half to two inches thick, almost entirely immersed. *Leaves* four or five from a bulb, contemporaneous with the flowers, linear, erect, nine to twelve inches long, half to five-eighths of an inch broad, narrowed gradually to an acute point and slightly at the base, fleshy in texture, a bright pale not glaucous green, a little blotched with purple at the base on the outside. *Scape* arcuate, three to four inches long, terete, not maculate. *Raceme* oblong, two to three inches long by an inch and a half broad whilst still in flower, thirty- to forty-flowered. *Pedicels* patent, slender, the lower ones twice as long as the flowers. *Perianth* a quarter of an inch deep, the divisions lurid purple, spreading from two-thirds of the way down when expanded. *Filaments*, *ovary* and *style* as in *S. lanceæfolia*.

Tab. 184. — 1, separate flower; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

For treatment see Tab. 179.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Scilla (*Ledebouria*) *zebrina*, Baker

TAB. 185.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, *Linn.*Sub-genus LEDEBOURIA, *Roth.* (See Appendix).

S. ZEBRINA, *Baker.* Bulbo crasso tunicato hypogæo, foliis 5—6 lanceolatis acutis deorsum paullulum angustalis subpedalibus synanthiis erectis carnosoherbaceis supra glauco-viridibus immaculatis infra striis purpureis copiosis et deorsum maculis paucis notatis, scapo arcuato maculato foliis subduplo brevior, racemo oblongo denso 30—40-floro, pedicellis floribus longioribus inferioribus cernuis, laciniis viridi-purpureis 3 lin. longis, filamentis laciniis subduplo brevioribus dimidio superiore purpureo, ovario stipitato basi discoideo ampliato.

A native of the Cape of Good Hope, introduced by Mr. Cooper.

Bulb ovoid, an inch and a half to two inches thick, almost entirely immersed. *Leaves* five or six to a bulb, contemporaneous with the leaves, not quite so fleshy in texture as the preceding species, eight to twelve inches long, twelve to twenty-one lines broad, clasping the scape at the base, narrowed gradually to an acute point, and slightly from the middle to the base, the upper surface a plain slightly glaucous green, the lower copiously marked with parallel vertical bars, and towards the base also with horizontal bars passing into blotches of purple. *Scape* arcuate, four to six inches long, copiously maculate downwards. *Raceme* three to four inches long when fully expanded by fifteen to sixteen lines broad, thirty- to forty-flowered, the *pedicels* exceeding the flowers, the lower ones cernuous. *Perianth* a quarter of an inch deep, the divisions purplish green, spreading from three-quarters of the way down when expanded. *Filaments* half as long as the divisions, the upper half purplish. *Ovary* distinctly stipitate, the base much dilated and distinctly six-toothed.

Tab. 185. — 1, separate flower; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

For treatment see Tab. 179.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Scilla (Ledebouria) subglauca, Baker.

TAB. 186.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, *Linn.*Sub-genus LEDEBOURIA, *Roth.* (See Appendix).

S. SUBGLAUCA, *Baker.* Bulbo globoso tunicato hypogæo, foliis 5—6 lanceolatis acutis erectis 9—10 poll. longis infra medium paullulum angustatis carnosio-herbaceis synanthiis glauco-viridibus infra deorsum paullulum purpureo maculatis, scapo foliis subduplo brevior, racemo laxo 30—40-floro, pedicellis gracilibus floribus subduplo longioribus, inferioribus cernuis, laciniis saturate roseo-purpureis 3 lin. longis, filamentis laciniis triente brevioribus dimidio superiore purpureo, ovario stipitato basi discoideo ampliato.

A native of the Cape of Good Hope, introduced by Mr. Cooper.

Bulb round, globose, almost entirely immersed. *Leaves* five or six to a bulb, linear-lanceolate, erect, fleshy-herbaceous, nine to ten inches long by an inch broad at the middle, acute, narrowed slightly below the middle, pale glaucous-green, spotted slightly with purple in the lower half on the outside. *Scape* spotted, arcuate, three to four inches long. *Raceme* lax, thirty- to forty-flowered, three to three and a half inches long by an inch and a half broad whilst in flower. *Pedicels* slender, half to five-eighths of an inch long, the lower ones cernuous. *Perianth* a quarter of an inch deep, the divisions bright rose-purple, spreading from two-thirds of the way down when expanded. *Filaments* two lines long, the upper half bright purple. *Ovary* distinctly stipitate, and the base much dilated and six-grooved. *Style* purple, two lines long.

Tab. 186. — 1, separate flower; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

For treatment see Tab. 179.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Scilla (Ledebouria) spathulata Baker.

TAB. 187.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, *Linn.*Sub-genus LEDEBOURIA, *Roth.* (See Appendix).

S. SPATHULATA, Baker. Bulbo magno ovoideo-rotundato tertio superiore epigæo subsquamoso, foliis 5—6 subsemipedalibus lanceolato-spathulatis acutis synanthiis ascendentibus pallide glauco-viridibus maculis saturatioribus notatis, scapis 2—3 arcuatis foliis brevioribus, racemo subdenso 30—40-floro pedicellis floribus subduplo longioribus inferioribus cernuis, laciniis purpureo-viridibus 4 lin. longis, filamentis laciniis ægre brevioribus dimidio superiore purpureo, ovario distincte stipitato basi discoideo ampliato.

A native of Cape Colony, introduced by Mr. Cooper.

Bulb two inches in thickness, the upper third emergent and subsquamose, the coats purple when fresh, fading to brownish. *Leaves* five or six to a bulb, contemporaneous with the flowers, fleshy-herbaceous, ascending, lanceolate-spathulate, six to seven inches long, eighteen to twenty-one lines broad below the middle, acute, pale glaucous-green with deeper green and purplish blotches. *Scapes* three to four inches long, arcuate, blotched. *Raceme* thirty- to forty-flowered, two to three inches long whilst in flower by eighteen to twenty-one lines broad, the *pedicels* half to five-eighths of an inch long, the lower ones cernuous. *Perianth* four lines deep, purplish green, reflexed from two-thirds of the way down when expanded. *Filaments* bright purple in the upper half, nearly as long as the divisions. *Ovary* distinctly stipitate, and the base dilated and six-toothed.

Tab. 187. — 1, separate flower; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

For treatment see Tab. 179.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Scilla (Ledebouria) floribunda Baker

TAB. 188.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, *Linn.*Sub-genus LEDEBOURIA, *Roth.* (See Appendix).

S. FLORIBUNDA, *Baker.* Bulbo globoso solitario hypogæo, foliis erectis carnosio-herbaceis synanthiis pedalis lorato-lanceolatis acutis pallide glauco-viridibus maculis saturatioribus notatis, scapis erectis firmis foliis triente vel dimidio brevioribus, racemo denso anguste oblongo 60—100-floro, pedicellis floribus ægre excedentibus, inferioribus cernuis, perigonio $4\frac{1}{2}$ —5 lin. longo laciniis extrorsum viridibus introrsum purpureo tinctis, filamentis laciniis triente brevioribus dimidio superiore purpureo, ovario stipitato basi valde applanatim ampliato.

A native of Cape Colony, introduced by Mr. Cooper.

Bulb roundish, solitary, hypogæous, brown-tunicated, two to two and a half inches thick. *Leaves* about six to a bulb, contemporaneous with the flowers, erect, fleshy-herbaceous, lorato-lanceolate, a foot long by two inches broad at the middle, acute, narrowed slightly downwards, pale green with large blotches of deeper green, and faintly tinged with purple towards the base. *Scapes* six to nine inches long, firm, erect, terete, a quarter of an inch thick. *Raceme* sixty- to a hundred-flowered, six to eight inches long by two inches broad whilst in flower, the axis—as it is mostly, more or less, in all the species—incrassated and corrugated. *Pedicels* half to five-eighths of an inch long, the lowest cernuous. *Perianth* four and a half to five lines deep, entirely green on the outside, but the centre within purplish. *Filaments* one-third shorter than the divisions of the perianth, the upper half deep-coloured. *Ovary* distinctly stipitate, with three flat emarginate projections at the base which are nearly as broad as the ovary itself.

Tab. 188.—1, separate flower; 2, pistil; 3, segment of perianth, with stamen: all magnified.—*J. G. B.*

For treatment see Tab. 179.—*W. W. S.*

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W. H. Fitch del. et lith.

J. N. Fitch imp.

Scilla (Ledebouria) princeps Baker.

TAB. 189.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, Linn.

Sub-genus LEDEBOURIA, Roth. (See Appendix).

S. PRINCEPS, Baker. Bulbo solitario globoso hypogæo, foliis 5—6 erectis carnosio-herbaceis synanthiis lorato-lanceolatis sesqui vel bipedalibus acutis pallide viridibus maculis saturationibus, scapis 2—3 foliis multoties brevioribus, racemo denso oblongo-cylindrico 100—200-floro, pedicellis patentibus floribus triplo longioribus, infimis cernuis, perigonio $4\frac{1}{2}$ —5 lin. longo laciniis extrorsum viridibus, introrsum purpureo-viridibus, filamentis laciniis triente brevioribus dimidio superiore purpureo, ovario stipitato basi valde applanatim ampliato.

A native of Cape Colony, introduced by Mr. Cooper.

Bulb round, tunicated, immersed, two to three inches thick. *Leaves* five or six to a bulb, contemporaneous with the flowers, fleshy-herbaceous, lorate-lanceolate, a foot and a half to two feet long by two to two and a half inches broad at the middle, acute, narrowed slightly downwards, pale green with large blotches of darker green especially on the under side in the lower half. *Scapes* two or three to a bulb, firm, arcuate, not maculate. *Raceme* dense, 100- to 200-flowered, a foot long in the specimen drawn by three to three and a half inches broad, the *pedicels* twelve to fifteen lines long, mostly horizontal but the lowest cernuous, the axis much incrassated and corrugated. *Perianth* four and a half to five lines deep, quite green on the outside, but deeply tinged with brownish purple within, spreading from two-thirds of the way down when expanded. *Stamens* a third shorter than the divisions, the upper half bright-coloured. *Ovary* distinctly stipitate, and furnished with three broad flat emarginate discoid projections.

Tab. 189. — 1, separate flower; 2, pistil; 3, horizontal section of ovary: all magnified.—J. G. B.

For treatment see Tab. 179.—W. W. S.

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Drimia robusta, Baker.

TAB. 190.

Natural Order LILIACEÆ.

Tribe HYACINTHEÆ.

Genus DRIMIA, Jacq. non Kunth.

(Idothea, Kunth).

D. ROBUSTA, Baker. Bulbo solitario hypogæo, foliis 6—9 erectis synanthiis lorato-lanceolatis tripedalibus glabris acutis carnosio-herbaceis immaculatis, scapo erecto tereti stricto tripedali, racemo subpedali modice laxo, pedicellis floribus cernuis et bracteis lanceolato-acuminatis subæquantibus, perigonio extrorsum viridi intus purpureo-tincto, laciniis ligulatis cucullatis tubo campanulato 3—4-plo longioribus, filamentis linearibus conniventibus laciniis paullulum brevioribus, ovarii loculis multiovulatis.

A native of Cape Colony, introduced by Mr. Cooper.

Bulb two to three inches thick, almost entirely immersed. *Leaves* six to nine to a scape, contemporaneous with the flowers, two feet long when fully developed by two inches broad, erect, fleshy-herbaceous, acute, narrowed slightly downwards, a moderate not at all glaucous green above, paler beneath, neither side spotted. *Scape* terete, erect, not spotted, eight to nine lines in thickness downwards. *Raceme* a foot long whilst in flower by two inches and a half broad, sixty- to eighty-flowered. *Pedicels* six to eight lines long, subpatent, the flowers cernuous. *Bracts* greenish white, membranous, linear-acuminate, six to nine lines long, protruding conspicuously beyond the unexpanded flowers. *Perianth* seven to eight lines deep, greenish, faintly tinged with purplish brown, the *cup* a line and a half to two lines deep, the divisions ligulate, both sides and apex cucullate. *Filaments* the same colour as the perianth, inserted at the throat of the tube, linear-acuminate, slightly unequal, nearly as long as the divisions. *Ovary* sessile, ovoid, the cells with two long rows of ovules in each, the filiform *style* exceeding the stamens and at last slightly exceeding the divisions.

Very near *D. altissima*, Bot. Mag. t. 5532, from which it differs by its longer leaves, shorter pedicels and bracts, and fewer and smaller flowers. *D. altissima*, Bot. Mag. t. 1074, is a different plant, and probably should be placed in the genus *Urginea*.

Tab. 190.—1, whole plant, much reduced. 2, portion of leaf; 3, raceme; 4, separate flower, with bract: all natural size. 5, pistil; 6, the same, with four stamens; 7, horizontal section of ovary: all magnified.—J. G. B.

For treatment see Tab. 179.—W. W. S.

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Drimiopsis maculata, Lindl.

TAB. 191.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus DRIMIOPSIS, *Lindl.* (See Appendix).

- D. MACULATA, *Lindl. & Part. Fl. Gard.* ii. p. 73, *cum icone.* Bulbo globoso dimidio superiore emerso squamoso, foliis 5—6 tri-quadripollicaribus acutis carnosio-herbaceis viridibus maculis saturationibus notatis basi in petiolum canaliculatum lamina æquante ciliatis, scapis arcuatis foliis superantibus, floribus 12—20 dense subspicatis, perigonio 2 lin. longo laciniis ovato-rotundatis.

A native of Cape Colony.

Bulb globose, an inch and a half thick, the upper half emergent and squamose. *Leaves* five or six to a bulb, cordate-ovate, fleshy-herbaceous, three to four inches long by an inch and a half to two inches broad, acute, the upper surface bright green blotched with deeper green, the *blade* narrowed suddenly into a concave *petiole* about as long as itself, which sheaths the base of the scape. *Scape* overtopping the leaves, terete, eight to twelve inches long. *Flowers* twelve to twenty, a few of the lowest often lax and abortive, the *spike* when fully developed half an inch in thickness, the lower flowers very shortly stalked and often a little drooping. *Perianth* two lines deep, at first milk-white, but changing to greenish white as it matures, the divisions ovate-rotundate, the outer ones a little longer than the other three, all concave and cucullate at the apex. *Stamens* not more than one-third as long as the divisions. *Ovary* sessile, subglobose, bluntly trisulcate, with two collateral ascending *ovules* in each cell.

Tab. 191.—1, separate flower, closed; 2, flower opened; 3, pistil: all magnified.—*J. G. B.*

An ornamental and interesting bulb, having bright green leaves blotched with black, which are in perfection for a large portion of the year. It flowers freely when grown in a warm airy greenhouse and kept near the light. The plant requires a liberal supply of water while in the growing state, and should be potted in a mixture of turfy loam and peat, with plenty of drainage.

I have had this plant under cultivation for many years.—*W. W. S.*

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*Drimiopsis minor*, Baker.

TAB. 192.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus DRIMIOPSIS, *Lindl.* (See Appendix).

- D. MINOR, *Baker*. Bulbo globoso tertio superiore epigæo squamoso, foliis 2—3 cordato-ovatis bipollicaribus carnosio-herbaceis viridibus maculis saturatioribus notatis basi in petiolum canaliculatum lamina subæquante cite angustatis, scapis foliis excedentibus, floribus 12—20 dense subspicatis, perigonio $1\frac{1}{2}$ lin. longo laciniis ovato-rotundatis.

A native of Natal, introduced by Mr. Cooper.

General habit just as in the preceding. *Bulbs* rather smaller (about an inch thick), densely aggregated. *Leaves* not more than two or three to a scape, cordate-ovate, fleshy-herbaceous, the longest at the flowering time two inches long by under an inch broad, the *blade* rounded at the base into a channelled *petiole* generally shorter than itself, the upper surface a bright shining green with generally a few distinct darker blotches, the under surface paler, the *petioles* spotted with purple downwards. *Scape* erect, much overtopping the leaves. *Flowers* twelve to twenty, densely subspicate. *Perianth* an eighth of an inch deep, the divisions, ovary and stamens just as in the last, but the former broader in the upper half.

Tab. 192.—1, separate flower, closed; 2, flower opened; 3, pistil: all magnified.—*J. G. B.*

This is a pretty bulb, on account of its spotted leaves, but less ornamental than the last species, which it much resembles. It requires the same treatment. I received bulbs of this species from Mr. Thos. Cooper, who collected them in the Natal district, South Africa.—*W. W. S.*

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W.H. Eitch, del. et lith.

J.N. Eitch, imp.

Pelargonium carnosum Ait.

TAB. 193.

Natural Order GERANIACEÆ.

Tribe PELARGONIÆÆ.

Genus PELARGONIUM, *L'Herit.*

Sect. OTIDIA (see Tab. 28).

- P. CARNOSUM* (*Ait. Hort. Kew*, ii. 421). Caulibus inconspicue griseo-puberulis, petiolis foliis subæquantibus, foliis oblongis profunde pinnatifidis pinnis late foliaceis rhomboideis extrorsum incisoserratis infimis exceptis contiguis, umbellis 5—6-floris, pedicellis subuncialibus, calycis segmentis lanceolatis acutis distincte membranaceo-marginatis, petalis albis superioribus ligulato-spathulatis calyce paullulum excedentibus introrsum rubro-venosis, inferioribus calyce paullulum brevioribus. — *Willd. Sp. Plant.* iii. 686; *D.C. Prodr.* i. 655; *Harv. Fl. Cap.* i. 278.

A native of the Cape of Good Hope.

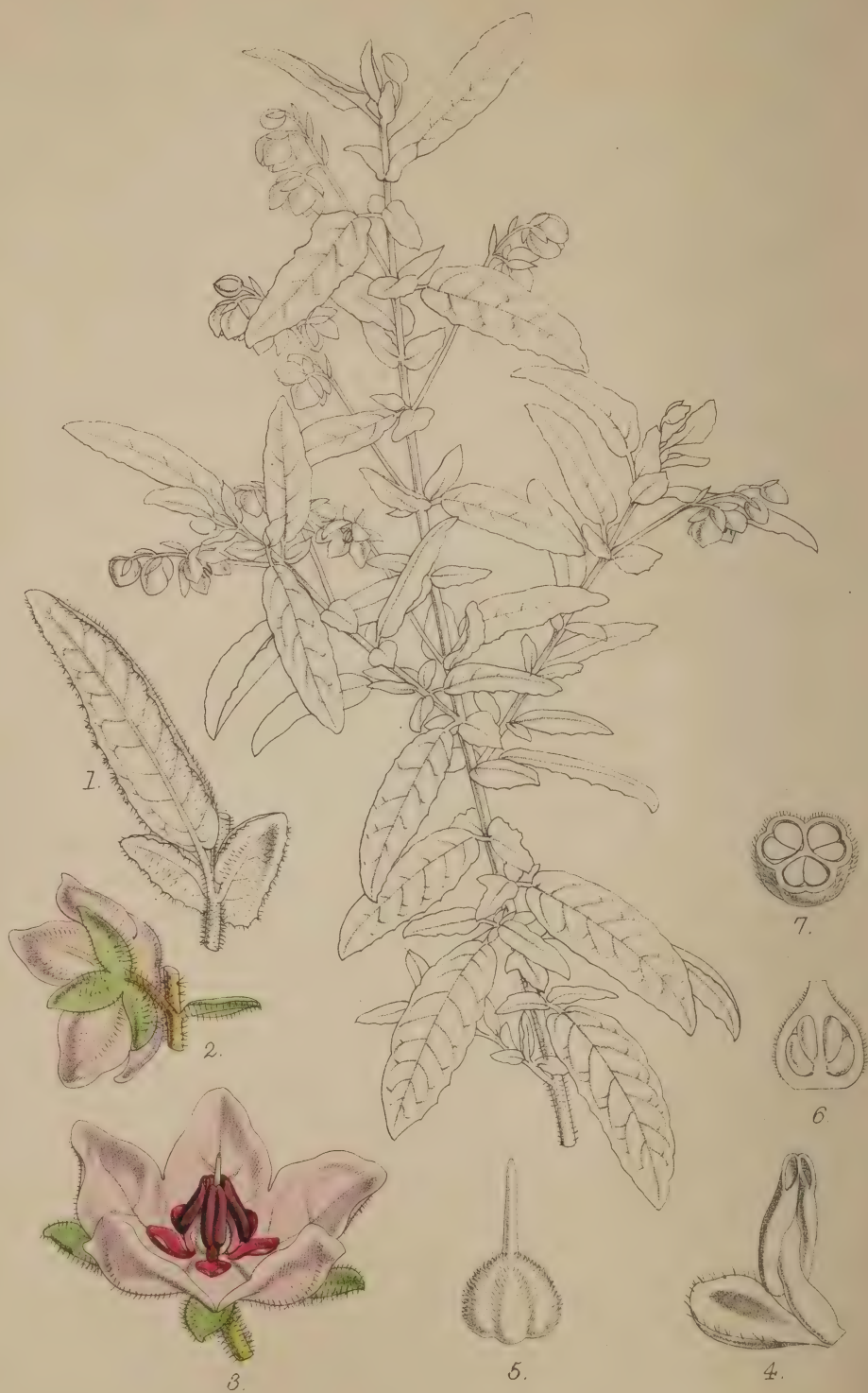
Main branches succulent, half an inch or more thick, greenish and finely gray-downy when young, gray and naked when old. *Flowering branches* erect, about a foot high, simple or branched again. *Petioles* nearly equalling the *leaves*, which in our plant under cultivation are two to four inches long by an inch and a half to two inches broad, oblong in general outline, deeply pinnatifid with rhomboidal divisions toothed principally along the outer edge, the lowest pair often remote from the rest, which are contiguous, the texture quite herbaceous, both surfaces pale green and subglabrous. *Flowers* in umbels of five or six flowers each, on erect *peduncles* four to six inches long. *Bracts* lanceolate-deltoid, recurved, about a line long. *Pedicels* often an inch long below the spur, inconspicuously downy. *Calyx-spur* a line and a half to two lines long, the divisions a quarter of an inch deep, lanceolate with a distinctly-marked white edge. *Petals* white with a slight pinkish tinge, the upper pair rather larger than the others, a little exceeding the calyx and veined with red in the throat. *Fertile stamens* five.

This is not exactly the variety figured by Sweet (*Otidia carnosa*, t. 98), which has more compound leaves and shorter pedicels. It comes near to the *P. mamillosum* of Wendland (*Hort.* t. 70) and our *P. sisonifolium* (*ante*, Tab. 28), and may also be compared with *P. laxum*, Sweet, t. 96. All of these are certainly included by Harvey under his idea of *P. carnosum* in 'Flora Capensis.'

Tab. 193. — 1, side view of entire flower; 2, front view of the same: both slightly magnified.—*J. G. B.*

A remarkably fleshy species of *Pelargonium*, sent to me from South Africa by Mr. Thos. Cooper. It requires a cool airy greenhouse, and should be supplied with water but slightly in the winter months. Like all the species of the section *Otidia* of the genus *Pelargonium*, it should be kept from heavy rains during the summer, although the open air is then advantageous to its health. This species grows well in a light sandy well-drained soil, and flowers freely.—*W. W. S.*

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W. H. Eitch, del. et lith.

J. N. Eitch, imp.

Thomasia purpurea, J. Gay.

TAB. 194.

Natural Order STERCULIACEÆ.

Tribe LASIOPETALEÆ.

Genus THOMASIA (*J. Gay, Mem. Mus. Par. vii. 450, t. 21, 22*). Calyx quinquefidus, coloratus vel hyalinus, demum membranaceo-dilatatus. Petala minuta, squamæformia vel nulla. Stamina basi connata vel libera, 5 antherifera sepalis alterna, staminodia nunc totidem vel pauciora vel nulla; antherarum loculi longitudinaliter dehiscentes. Ovarium 3, rarius 4—5-loculare, loculis 2 vel multiovulatis, stylo filiformi. Capsula loculicide dehiscens. Semina solitaria vel pauca, erecta, albuminosa; embryo rectus; cotyledones foliaceæ; radicula hilo proxima. Suffrutices australienses.—*Benth. et Hook. fil. Gen. Plant. i. 227.*

T. PURPUREA (*J. Gay, loc. cit.*) Frutex humilis erectus copiose ramosus ramis griseo-hispidis, stipulis late foliaceis, foliis lineari-oblongis integris obtusis stellato-hispidis, racemis 3—6-floris, pedicellis brevibus, calyce corolliformi rubro lobis deltoideis tubo subæquantibus, bracteolis linearibus vel lanceolatis, petalis minutis, filamentis perbrevibus, ovario 3—4-loculari, loculis biovulatis, stylo glabro. — *D.C. Prodr. i. 489; Benth. Fl. Austr. i. 253. Lasiopetalum purpureum, Bot. Mag. t. 1755.*

A native of the Swan River.

A copiously-branched erect shrub one or two feet high, with firm very slender terete gray-downy branches. Petioles an eighth to a quarter of an inch long, with a pair of large leaf-like oblique sessile stipules at the base. Leaves linear-oblong, twelve to eighteen lines long when fully developed by three to six lines broad, blunt, entire, rounded at the base, subcoriaceous in texture, pale green above and scabrous with scattered stellate hairs, paler and more densely hairy below, the edges decurved. Flowers three to six together in moderately close stalked racemes from the axils of the leaves. Pedicels under a line long. Bracteoles linear or linear-lanceolate, often as long as the calyx. Calyx corolla-like, pale purplish, at first not more than a quarter of an inch across when expanded, with five deltoid bluntish lobes reaching half-way down, finally scariose and much larger and prominently veined. Petals minute, scale-like, sometimes absent. Anthers five, with very short filaments. Ovary three- or rarely four-celled, the cells biovulate. Style glabrous.

Tab. 194.—1, leaf with pair of stipules ; 2, back view of entire flower ; 3, front view of the same ; 4, stamen and petal ; 5, pistil ; 6, vertical section of the same ; 7, horizontal section : all magnified.—*J. G. B.*

The seeds of this pretty, neat-growing, small greenhouse shrub I received from my friend S. Solly, F.R.S. It grows freely in sandy turfy peat, and requires plenty of air and light. The plant flowers freely when grown in pots small in proportion to its size.—*W. W. S.*

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W B Fitch del. et lith.

J N. Fitch imp.

Hermannia scoparia, Harv.

TAB. 195.

Natural Order STERCULIACEÆ.

Tribe HERMANNIÆ.

Genus HERMANNIA (*Linn. Gen.* 828). Calyx 5-fidus. Petala 5, obovata vel oblonga, marcescentia vel decidua, unguibus cavis. Stamina 5, petalis opposita, basi connata, staminodiis nullis, filamentis oblongis vel superne dilatatis, antherarum loculis parallelis. Ovarium sessile vel breviter stipitatum, 5-loculare, loculis multiovulatis; styli 5, basi plus minus coaliti. Capsula loculicide 5-valvis, apice nuda vel 5-cornuta. Semina reniformia, albuminosa; embryo arcuatus; cotyledones oblongæ; radícula juxta hilum. Herbæ vel suffrutices capenses, pube sæpius stellata plus minus vestitæ, stipulis foliaceis, floribus racemosis.—*Benth. et Hook. fil. Gen. Plant.* i. 223.

H. SCOPARIA (*Harv. Fl. Cap.* i. 194). Ramis virgatis erectis sparse hispidis, foliis parvis subsessilibus linearibus subintegris vel sursum inconspicue dentatis supra glabris infra sparse hispidis, stipulis linearibus foliis dimidio brevioribus, racemis 1—6-floris, pedicellis perbrevibus, calyce campanulato sparse hispido dentibus deltoideis tubo subæquantibus, petalis calyce subduplo longioribus, filamentis antheris longioribus, ovario obovoideo hispido.—*Mahernia scoparia*, *Eck. et Zeyh.* 404.

A native of Cape Colony.

A copiously-branched bush, with slender sulcate erect inconspicuously hispid twigs. Leaves subsessile, subcoriaceous, linear, narrowed from the middle to both ends, acute, subentire or slightly toothed in the upper half, the largest in the cultivated plant twelve to fifteen lines long, a line and a half to two lines broad, both sides green, the under one slightly hispid on the midrib and edge. Stipules linear, about half as long as the leaves. Peduncles ascending, the flowers one to six in moderately close subsecund racemes. Pedicels very short, bracteate. Calyx two lines deep, hispid on the conspicuous veins, the deltoid teeth equalling the campanulate tube. Petals nearly twice as long as the calyx, cream-coloured in our specimens. Filaments longer than the anthers. Ovary obovoid, hispid, about equalling the glabrous style.

Tab. 195.—1, entire flower; 2, separate petal; 3, stamens and pistil; 4, separate stamen; 5, pistil; 6, section of ovary; 7, section of the fruit: all magnified.—*J. G. B.*

This is an interesting greenhouse plant, raised from seed obtained from South Africa. It is not very showy, but its white flowers, produced in terminal clusters, are very pretty. It flowers freely when grown in sandy loam and peat in well-drained pots.
—*W. W. S.*

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TAB. 196.

Natural Order RHAMNACEÆ.

Tribe RHAMNEÆ.

Genus POMADERRIS (*Lab. Pl. Nov. Holl.* i. p. 61, t. 86—7). Flores pedicellati vel rarius subsessiles, bracteis deciduis. Calycis tubus ovario adnatus, limbus 5-partitus, sæpius deciduus vel reflexus. Petala 5 vel nulla. Stamina 5, filamentis elongatis, antheris oblongis, petalis haud inclusis. Discus tenuis vel inconspicuus, apicem ovarii ad basin calycis cingens. Ovarium plus minus distincte inferum, stylis 3 longe coalitis. Capsula e tubo adnato calycis exserta, apice trivalvis, coccis crustaceis vel membranaceis nunc operculo lato vel tota facie interiore, nunc rarius subbivalvatum, dehiscentibus. Semina ovoidea. Frutices australienses ramis et foliis infra hirsutis floribus sæpissime paniculatis.— *Benth. et Hook. fil. Gen. Plant.* i. 381.

P. VACCINIÆFOLIA (*Reissek et F. Muell. Linnæa*, xxix. 226). Ramis griseo-puberulis, foliis breviter petiolatis subcoriaceis parvis obovatis integris emarginatis supra glabris infra diutine albidopannosis, paniculis densis ramis cymosis, calycibus argenteo-sericeis dentibus lanceolatis tubo perbrevis multoties longioribus, petalis subplanis lacteis unguibus laminâ rhomboidea crenata subæquantibus, ovario semisupero dense albo-sericeo, coccis membranaceis per totam faciem dehiscentibus.— *F. Muell. Fragm.* iii. 71; *Benth. Fl. Austral.* i. 419.

A native of Victoria (Australia).

A low copiously-branched shrub, with slender terete finely gray-downy chesnut-coloured branches. Leaves thickly scattered, opposite or alternate, shortly stalked, oblong or obovate, the largest half an inch long by more than half as broad, the edge quite entire but the apex slightly emarginate, texture subcoriaceous, the upper surface dark green, the lower permanently matted with close white tomentum, the veins slightly ferruginous. Panicles copious, terminal on the spreading branches, half to three-quarters of an inch thick, the lower branches corymbose, subtended at the base by leaf-like bracts. Buds globular, finely white-silky, the lanceolate cream-coloured divisions of the calyx many times exceeding the tube. Petals cream-coloured, shorter than the sepals, the rhomboidal crenate nearly flat blade about equalling the claw. Ovary half-emergent, densely white-silky,

the *style* not split half-way down. "*Fruit* nearly an eighth of an inch long, the free part much exceeding the adnate base, the cocci thin, opening by the separation of the whole inner face."

Tab. 196. — 1, leaf and portion of branch; 2, entire flower; 3, single petal; 4, stamen; 5, pistil; 6, horizontal section of the same. all magnified.—*J. G. B.*

A greenhouse shrub, neat in habit, but with little pretension to beauty in the flowers. I raised it from seeds kindly presented to me by S. Solly, F.R.S. It is easy of cultivation when grown in sandy loam and peat, and it should have plenty of light and air when the plant is housed in the winter.—*W. W. S.*



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W. H. Fitch, del et lith.

J. N. Fitch, imp.

Cotyledon pubescens Baker.

TAB. 197.

Natural Order CRASSULACEÆ.

Genus COTYLEDON, *Linn.*Section ECHEVERIA, *D. C.*

- C. PUBESCENS (*Baker, Mon. No. 1*). Longe caulescens, dense griseo-pubescens, foliis aggregatis, obovato-spathulatis, acutis, duplo longioribus quam latis, e basi tertii superioris spathulatim angustatis, utrinque pallide viridibus, ramorum floriferorum plus minus reductis, floribus 15—25 subdense spicatis, bracteis linearibus, inferioribus floribus excedentibus, sepalis linearibus inæqualibus patulis, corolla flavo-rubra subæquantibus. — *Echeveria pubescens*, *Schlecht. Linn. xiii. 411*; *Hort. Hal. t. 9*; *Walp. Rep. ii. 295*.

A native of Mexico.

Stems grayish or reddish brown, like the rest of the plant between shaggy and velvety with gray pubescence, often one or two feet high and an inch thick, marked with the round scars of the fallen leaves. *Leaves* obovate-spathulate, eight to twelve aggregated towards the apex of the stem in a lax rosette, the largest three to three and a half inches long by an inch and a half broad, spathulately narrowed from two-thirds of the way up, the point subacute, the base subterete, two to three lines thick, the blade half as thick, the face concave, the colour a pale green, tinged with red in fading, and both sides so densely pubescent that in some lights they look nearly white. *Flowering branch*, including the spike, a foot high, the *leaves* numerous, in shape like those of the rosette, but growing smaller gradually as we ascend. *Spike* occupying about half the branch, composed of fifteen to twenty-five flowers, the upper ones dense, the lower ones moderately so. *Bracts* linear, the lower ones exceeding the flowers. *Sepals* linear, very fleshy, unequal, spreading, the longest equalling the *corolla*, which is distinctly pentagonal, five-eighths of an inch deep, bright red on the outside when mature, yellow within, the acute lanceolate-spathulate divisions reaching half-way down.

Tab. 197. — 1, an entire flower; 2, its carpels and hypogynous scales: both magnified.—*J. G. B.*

This species, said to be from Mexico, I have had for some time under cultivation, but I am not aware from whence it was received. It is well worth growing, the scarlet flowers being produced in considerable numbers in a long spike, with dark green calyces. The plant requires the temperature of a warm well-ventilated greenhouse, and should be grown in a mixture of sandy loam, leaf-mould and peat, taking care that the pots be well drained, and supplied with little water during the winter months.—*W. W. S.*

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W. H. Erch. del. et lith.

J. N. Erch. imp.

Cotyledon atropurpurea Baker.

TAB. 198.

Natural Order CRASSULACEÆ.

Genus COTYLEDON, Linn.

Sect. ECHEVERIA, D. C. (See Monograph in vol. i.)

- C. ATROPURPUREA, Baker. Breviter caulescens, glabra, foliis dense rosulatis atro-purpureis glaucis obovato-spathulatis ultra duplo longioribus quam latis acutis dimidio inferiore spathulatim angustatis, ramorum floriferorum confertis valde reductis, floribus 20—25 subaxe æquilateraliter racemosis, bracteis linearibus pedicellis patentibus subæquantibus, sepalis lanceolatis æqualibus patulis corollâ saturate rubra distincte pentagonâ subtriplo brevioribus.—*Echeveria atropurpurea*, Hort.

Probably a native of Mexico.

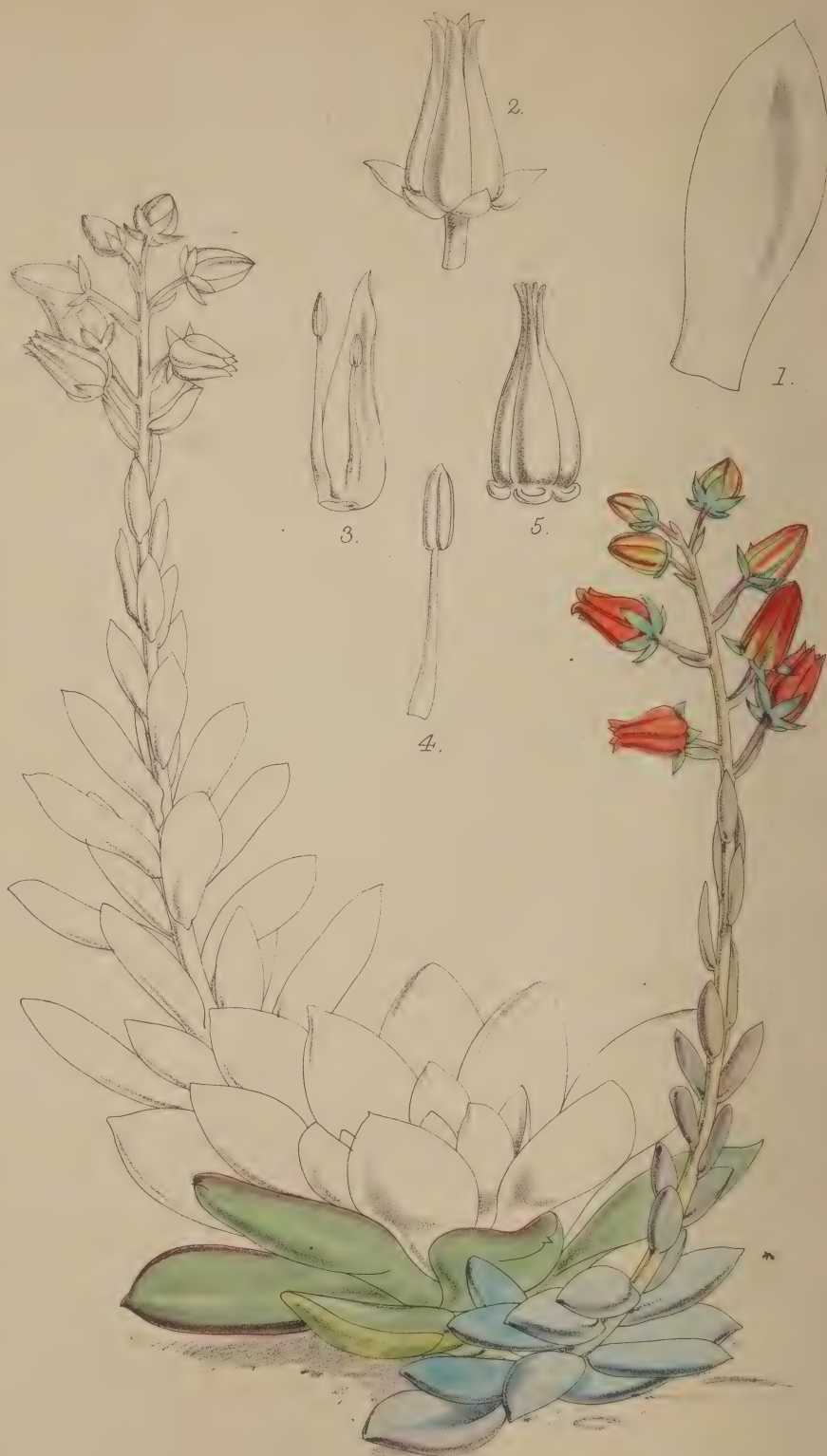
Stems glabrous, attaining a height of four to six inches and a thickness of an inch. *Leaves* about twenty, aggregated in a dense rosette, obovate-spathulate, the largest four to five inches long by two inches broad three-quarters of the way up, acute, the base broad for the genus, the texture moderately thick, the upper surface especially dark purple with a glaucous bloom. *Stem* erect, about a foot high without the raceme, its leaves close, much reduced. *Raceme* twenty- to twenty-five-flowered, five to six inches long when fully expanded by less than two inches broad. *Bracts* linear, the lowest half an inch long. *Pedicels* three-eighths to half an inch long, spreading horizontally or in the lowest a little deflexed. *Sepals* subequal, patent, linear-lanceolate, two lines long. *Corolla* bright red, half an inch deep, decidedly pentagonal, the divisions acute, the outer row of *stamens* inserted about half-way down.

Nearest *C. canaliculata* (Mon. No. 9), but the leaves much broader and spathulately narrowed in the lower half, the colour characteristic, and the calyx and corolla much smaller.

Tab. 198.—1, an entire flower; 2, segment of corolla and two stamens; 3, carpels and hypogynous scales: all magnified.—J. G. B.

I received this interesting and beautiful species, of the section *Echeveria* of the genus *Cotyledon*, from Mons. De Smet, of Ghent. I am not aware of its native country. It requires the same treatment as the species figured at Tab. 197.—W. W. S.

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W. H. Eitch del. et lith.

J. N. Eitch imp.

Cotyledon carnicolor. Baker.

TAB. 199.

Natural Order CRASSULACEÆ.

Genus COTYLEDON, *Linn.*Section ECHEVERIA, *D. C.*

- C. CARNICOLOR*, *Baker*. Acaulis, glabra, foliis dense rosulatis crassis oblanceolato-spathulatis triplo longioribus quam latis acutis pallide glauco-rubris, ramorum floriferorum numerosis confertis, floribus 6—12 in racemum æquilaterale modice densum dispositis, bracteis linearibus pedicellis erecto-patentibus brevioribus, sepalis lanceolatis subæqualibus corolla coccinea distincte pentagona triplo brevioribus.

Probably a native of Mexico.

Quite stemless and glabrous. *Leaves* about twenty in a dense rosette, thicker in texture than the average of the section, oblanceolate-spathulate, the outer ones two inches long by three-quarters of an inch broad half-way up, acute, the haft three-eighths of an inch broad just above the base, the face concave, the colour a pale glaucous-green with a decided reddish tinge, the papillæ more distinct than in any other species. *Stems* two or three from the crown of the root, arcuately ascending, not more than half a foot high including the raceme, densely leafy. *Racemes* six- to twelve-flowered, fifteen to eighteen lines broad, not more than an inch and a half to two inches long when fully expanded. *Bracts* linear, the lowest nearly as long as the pedicel, the upper much shorter. *Pedicels* erecto-patent, three to four lines long. *Sepals* lanceolate, subequal, subpatent, two lines deep. *Corolla* bright red when mature, distinctly pentagonal, half an inch deep, the divisions lanceolate, the outer *stamens* inserted near the base of the corolla.

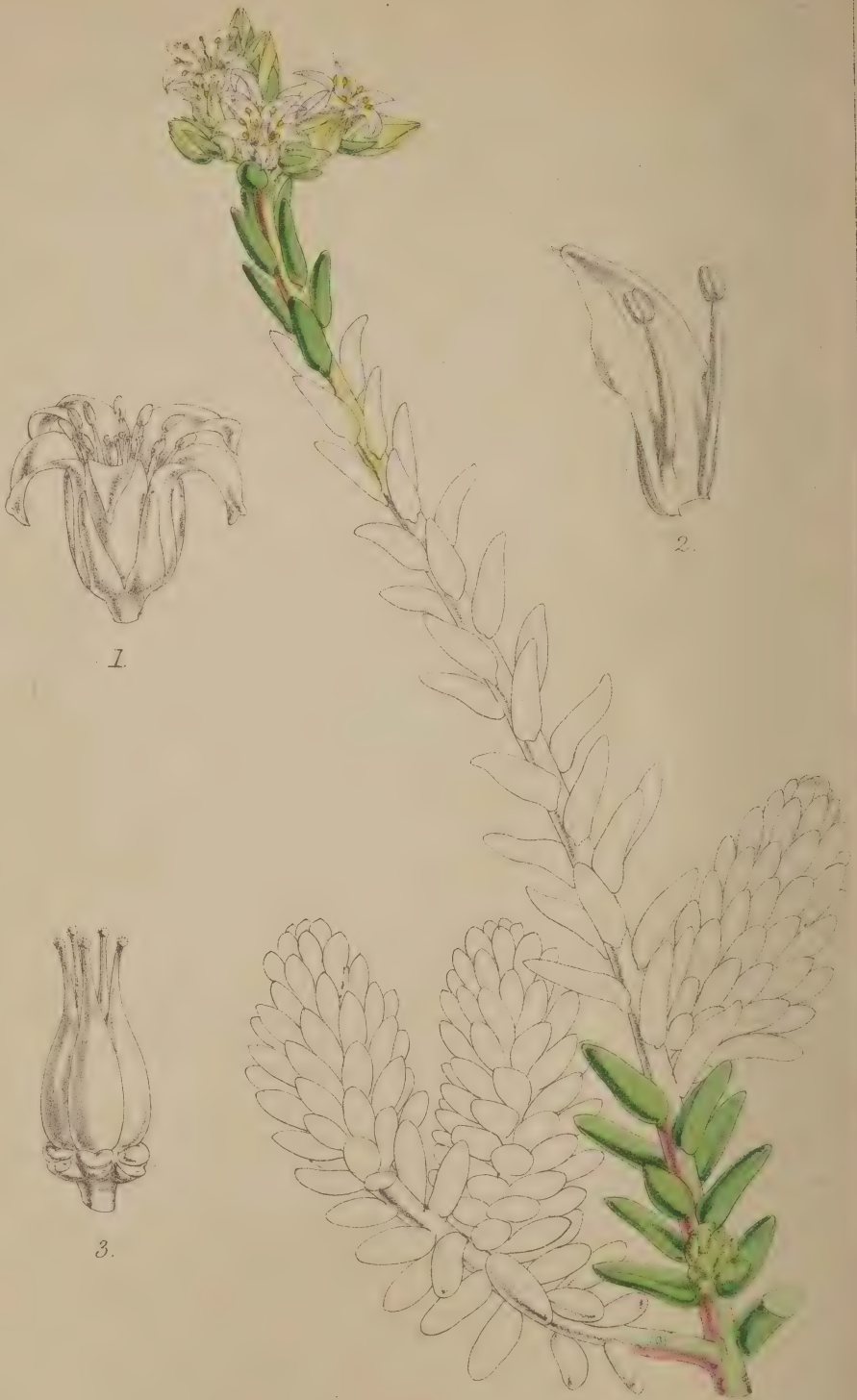
A very well-marked new species. The only other acaulescent *Racemosæ* known are *C. peruviana* and *lurida*, both of which have the flowers much more numerous and distant.

Tab. 199. — 1, outer leaf of rosette, natural size; 2, single flower; 3, segment of corolla with two stamens; 4, single stamen of inner series; 5, carpels and hypogynous scales: all magnified.—*J. G. B.*

This plant should be treated much in the same way as recommended for *C. pubescens* (Tab. 197), but it is much more

impatient of moisture, the leaves rotting and falling from the plant when kept too wet. It produces a neat rosette of leaves when well grown, and flowers freely. I have had it for some time under cultivation, and I believe it was obtained from Mexico. —
W. W. S.

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Cotyledon decipiens, Baker

TAB. 200.

Natural Order CRASSULACEÆ.

Genus COTYLEDON, Linn.

- C. DECIPIENS*, Baker. Acaulis, glabra, foliis parvis pallide viridibus subteretibus obtusis basi auriculatis, ramorum sterilium numerosis densis, ramorum floriferorum laxioribus similibus erecto-patentibus, floribus 12—15 in corymbum densum ramis scorpioideis dispositis, pedicellis subnullis, sepalis linearibus æqualibus ascendentibus corollâ alba nullo modo pentagona duplo brevioribus, corollæ segmentis falcato-patentibus tubo æquantibus.

A native of Peru.

Barren shoots two to three inches long, often branched. *Leaves* numerous and densely aggregated, pale green, glabrous, the largest about half an inch long, subterete, more rounded on the back than the face, blunt, spurred at the base. *Flowering shoots* arcuate, six to eight inches long, with moderately dense erecto-patent leaves just like those of the barren shoots, the upper ones smaller. *Flowers* twelve to fifteen in a close often trifid corymb with scorpioid branches. *Pedicels* scarcely any. *Sepals* two lines long, lanceolate, fleshy, subequal, adpressed to the corolla. *Corolla* pure white, not at all pentagonal, the campanulate tube equalling the calyx, the divisions the same length, lanceolate-deltoid, spreading falcately in the expanded flower. *Outer row of stamens* inserted low down in the tube.

Of the American species the only one which this interesting novelty at all resembles is *C. subulifolia* (Monograph, No. 32). Till it flowers it has every appearance of a *Sedum*. In a classification founded on characters it must be placed in close neighbourhood to the Pyrenean *Umbilicus sedoides*, D.C.

Tab. 200. — 1, single flower, entire; 2, segment of corolla with two stamens; 3, carpels and hypogynous scales: all magnified.—J. G. B.

I obtained this interesting species, which has compactly-set leaves much resembling some species of *Sedum*, from Peru, where it was collected by Mr. Farris. It grows and flowers freely, and requires the same treatment as that proposed for *C. pubescens* (Tab. 197).—W. W. S.

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W. E. Fitch, del. et lith.

J. N. Fitch, imp.

Cotyledon globulariæfolia Baker.

TAB. 201.

Natural Order CRASSULACEÆ.

Genus COTYLEDON, *Linn.*Section UMBILICUS, *D.C.*

C. GLOBULARIÆFOLIA, *Baker*. Acaulis, glanduloso-pubescent, foliis dense rosulatis pallide viridibus obovato-spathulatis 3—4-plo longioribus quam latis obtusis exterioribus recurvatis, ramorum floriferorum numerosis oblanceolatis, floribus 20—40 in paniculam thyrsoideam modice densam ramis patentibus cymosis dispositis, pedicellis infimis calyce æquantibus, sepalis lanceolatis ascendentibus, corollis albis rubro-tinctis segmentis lanceolato-deltoides tubo campanulato æquantibus, filamentis subæqualibus ad basin tubi insertis. — *Umbilicus globulariæfolius*, *Fenzl, Pug. Plant. Nov. Syr. i. 15; Walpers, Repert. ii. 258.*

A native of Syria and Asia Minor.

Root stout, fusiform, perennial. *Leaves* thirty to forty in a dense sessile rosette, like the whole plant finely glanduloso-pubescent, the outer ones recurved, obovate-spathulate, two to two and a half inches long by half to three-quarters of an inch broad five-sixths of the way up, blunt or with an obscure point, the colour pale green, the texture thin for the genus, the edge conspicuously gland-ciliated. *Flowering branches* arcuately ascending from the crown of the root below the sterile rosettes, often more than one, four to six inches long exclusive of the flowers. *Flowers* twenty to forty in a moderately dense thyrsoid *panicle* with patent cymose branches, the upper *pedicels* very short, the lower a line and a half to two lines long. *Calyx* very glandular, two lines deep, the divisions equal, ascending, lanceolate, not very fleshy, adpressed to the corolla. *Corolla* three-eighths of an inch deep, pure white with a reddish tinge, cleft half-way down, the divisions lanceolate-deltoid, acute, falcate when expanded. Both rows of *stamens* subequal, the outer row inserted at the very base of the cup.

This belongs to a small well-marked group of Oriental species. Its allies are *U. libanoticus*, *D.C.*, *U. persicus*, *Boiss.*, and *U. Pestalozzæ*, *Boiss.*; and whether the four are to be regarded as distinct specifically, in the broad sense, we doubt very much. Our plant is exactly *Kotschy*, 202, from the Taurus.

Tab. 201.—1, leaf of basal rosette, natural size; 2, stem-leaf; 3, entire flower; 4, the same cut open: all magnified.—*J. G. B.*

This is a very neat species, producing well-formed rosettes of leaves, and when in flower quite ornamental. It is much hardier than the species of the section *Echeveria*, from the New World. The protection of a cool greenhouse suits it well in winter, during which season it requires but little water. It should be grown in a light sandy soil, in small well-drained pots.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch imp.

Hydrocotyle asiatica, Linn.

TAB. 202.

Natural Order UMBELLIFERÆ.

Tribe HYDROCOTYLEÆ.

Genus HYDROCOTYLE, *Linn.*

H. ASIATICA, *Linn. Sp. Plant.* p. 234. Caulibus late repentibus, petiolis elongatis foliis consociatis 3—4 rotundato-reniformibus sinu basali profundo deltoideo crenatis glabris vel pubescentibus, pedunculis brevibus, floribus in capitulis 3—4-floris dispositis bracteis 2 suffultis capitulo primum æquantibus, pedicellis perbrevis, inæqualibus, fructibus sesqui-latoribus quam longis distincte costatis. —*D.C. Prodr.* iv. 62. *H. repanda*, *Pers. D.C. Prodr. loc. cit.* *H. cordifolia*, *Hook. fil. Ic. Plant.* t. 303, cum synonymis multis aliis.

Distributed almost universally through the temperate and sub-tropical regions of the Southern Hemisphere.

Stems slender, firm, wide-creeping, with the roots, leaves and flowers in clusters from the nodes, which when the plant is well-developed are two to four inches apart. *Leaves* three to four to a cluster, on *petioles* varying from two inches to a foot long, herbaceous, green on both sides, glabrous or rarely hairy principally beneath, rotundato-reniform, varying from half an inch to two inches across each way, distinctly crenate or inciso-crenate, with a deep deltoid basal sinus, with seven to nine veins radiating from the apex of the petiole. *Peduncles* one to three from a tuft, glabrous or pubescent, three to twelve lines long. *Flowers* three to four in a dense head, which at first is equalled and clasped by its pair of oblong glabrous or pubescent *bracts*. *Pedicels* unequal, very short. *Petals* very minute, equal, greenish white tinged with pink. *Fruit* an eighth of an inch deep by half as broad again, glabrous, much flattened laterally, the faces distinctly ribbed.

Tab. 202. — 1, cluster of flowers with bracts: 2, separate flower; 3, fruit: 4, horizontal section of the same: all magnified.—*J. G. B.*

The flowers of this plant are very inconspicuous, but the habit of the plant and its fine green foliage render it well worthy of cultivation as a pendant plant grown in a basket. I obtained it from seed sent from Bahia by Mr. E. C. Reed. It requires damp stove treatment, thriving in any good soil, is very easy of cultivation, and is freely propagated by the creeping stem.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Artemisia Stelleriana. Bess.

TAB. 203.

Natural Order COMPOSITÆ.

Sub-order SENECTIONIDEÆ.

Tribe ANTHEMIDEÆ.

Genus ARTEMISIA, Linn.

Sect. ABROTANUM, Besser. Capitula heterogama, radii floribus fœmineis, disci hermaphroditis, omnibus fertilibus.

A. STELLERIANA (Besser, Abrot. No. 66, t. 5). Herba perennis albido-incana, caulibus validis erectis, foliis oblongis profunde pinnatifidis segmentis plerisque simplicibus obtusis vel subobtusis, capitulis in paniculam anguste thyrsiodeam ramis inferioribus distantibus racemosis dispositis, pedicellis brevibus vel subnullis, involucris globoso-campanulatis dense incanis squamis lanceolatis floribus subæquantibus.—*D. C. Prodr.* vi. 119.

A native of Kamtschatka.

Root perennial. *Stem* strong, erect, six to nine inches high below the flowers, like the rest of the plant permanently matted with close soft white cottony tomentum. *Leaves* crowded about the lower part of the stem, narrowed to a short flat petiole, oblong in general outline, the largest two inches long by half as broad, deeply pinnatifid, only the largest divisions slightly compound, the upper segments lanceolate, obtuse or bluntly pointed, the texture quite soft and pliable, and both sides permanently matted with close white tomentum. *Flower-heads* in an elongated thyrsoid panicle dense upwards, the lower branches distant, ascending, racemose. *Heads* spreading or subcernuous, the upper ones subsessile, the lower shortly stalked. *Involucre* globoso-campanulate, about a quarter of an inch deep and thick, densely white-cottony, with twelve to fifteen lanceolate scales, the outer ones rather shorter than the inner ones and considerably broader. *Flowers* all tubular, the tube glandular, the inner ones hermaphrodite, the outer ones without anthers.

Tab. 203. — 1, head of flowers; 2, female flower; 3, its style and stigmas; 4, perfect flower; 5, anther; 6, style and stigmas of perfect flower: all magnified.—*J. G. B.*

I obtained this plant from Mr. R. M. Stark, of Edinburgh, and it is well suited for rock-work, or may be usefully employed as an edging plant, having a compact habit, and the silvery gray of the leaves producing a very pretty effect. It is easily increased by cuttings or divisions of the stem. It is perfectly hardy, as might be expected from a plant native of Kamtschatka. —
W. W. S.

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Teucrium fruticans, Linn.

TAB. 204.

Natural Order LABIATÆ.

Tribe AJUGOIDEÆ.

Genus TEUCRIUM, Linn.

Sect. TEUCRIS (*Ging.*) Pedunculi axillares oppositi, uniflori vel laxe cymosi. Calyx campanulatus, erectus, æqualis, quinque-dentatus. Corollæ lacinie 4 superiores oblongæ, declinatæ, infima oblonga, concava. Nuculæ reticulato-rugosæ. Herbæ vel frutices foliis plerisque integerrimis.

T. FRUTICANS (*Linn. Sp. Plant.* p. 787). Fruticosum ramis albotomentosis, foliis oblongis parvis integerrimis acutis supra viridibus glabris subtus albo- vel rufescenti-tomentosis, floribus laxe racemosis, pedunculis unifloris, calycibus tomentosis ad medium 5-partitis, corollis cæruleis, lacinia infima calyce 3—4-plo longiore, staminibus et stylo arcuatis subæqualibus.—*Sibth. et Sm. Fl. Græc.* vi. t. 572. *T. latifolium*, *Linn. Sp. Plant.* p. 788; *Bot. Mag.* t. 245.

A native of Spain, Italy, the South of France, and the Barbary States.

A shrub two to three feet high, with slender tetragonous woody branches permanently clothed with white tomentum. Petioles very short. Leaves oblong, blunt, entire, twelve to eighteen lines long, subcoriaceous, green and glabrous above, permanently clothed with a coating of cottony tomentum which is usually pure white but sometimes a pale rusty brown. Flowers in lax racemes, the lower whorls in pairs from the axils of the upper leaves. Pedicels erecto-patent, tomentose, two to three lines long. Calyx a quarter of an inch deep, tomentose like the rest of the plant, obconical, cleft about half-way down with subequal lanceolate-deltoid teeth. Corolla bright blue, tender, declinate, with a very short tube, the lower segment nine to twelve lines long, deeply lobed, very concave. Stamens and style filiform, nearly equal, forming a conspicuous arch.

Tab. 204.— 1, entire flower; 2, stamen; 3, pistil; 4, ovary: all magnified.—*J. G. B.*

This is a very interesting and showy plant, producing an abundance of bright lavender-coloured flowers. It requires plenty of pot room, and should be grown in rich loam, and protected during the winter in a cool greenhouse. It is increased by cuttings. Planted near a south wall, where it can have a little protection from frost, it will endure our winters.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Salvia Heerii. Regel.

TAB. 205.

Natural Order LABIATE.

Tribe MONARDEÆ.

Genus SALVIA, Linn.

Section CALOSPHERE, Benth.

- S. HEERII (*Regel, Gartenfl.* 1855, p. 77, tab. 112 recte 115). Suffrutescens, erecta, ramis tetragonis breviter griseo-pubescentibus, foliis petiolatis cordato-ovatis acutis serratis membranaceo-herbaceis rugosis utrinque precipue infra pubescentibus, bracteis late ovatis cito deciduis, racemis laxis verticillastris plerisque bifloris, calycibus viridibus tubulosis dentibus erectis deltoideis, corollis coccineis calyce 3—4-plo longioribus e calyce ad faucem sensim ampliatis, labiis brevibus, inferiore profunde trilobato lobo infimo applanato late obcordato, stylo et staminum ramis fertilibus exsertis.

A native of Peru.

An erect shrub two to three feet high, the branches tetragonous, clothed with soft gray pubescence. *Petioles* one to two inches long. *Leaves* ovate, acute, inconspicuously toothed, the lower ones cordate, three to four inches long, the upper ones rounded at the base, membranaceo-herbaceous, rugose, dull green, clothed, especially beneath, with soft gray pubescence. *Racemes* six to nine inches long, lax, most of the whorls two-flowered. *Bracts* broad-ovate acuminate, soon deciduous. *Pedicels* erecto-patent, downy, a line and a half to two lines long. *Calyx* tubular, three-eighths to half an inch long, not bright-coloured, the teeth deltoid, about half as long as the tube. *Corolla* bright scarlet, finely pubescent, fifteen to eighteen lines long, the tube more than twice the divisions, dilated gradually from where it leaves the calyx to the throat, the upper lip slightly emarginate, the lower nearly flat, deeply three-lobed, the lower lobe emarginate, twice as broad as deep. *Style* glabrous, with the fertile branches of the stamens distinctly exserted.

Tab. 205. — 1, entire flower; 2, the same, with corolla removed; 3, ovary: all magnified.—J. G. B.

I have grown this species for some time, and placed it foremost in rank for beauty among the many showy species of the interesting genus *Salvia*. It is a charming and most useful

conservatory plant during the winter and spring months, easy of cultivation and an abundant flowerer. It should be grown in rich sandy loam, and allowed plenty of pot room. It strikes freely from cuttings. The beauty of its large heads of scarlet flowers has induced me to figure it in the 'Refugium,' the portrait of the plant in Regel's 'Gartenflora' doing the plant but little justice.—*W. W. S.*

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W. E. Fitch, del. et lith.

J. N. Fitch, imp.

Salvia mentiens, Pohl.

TAB. 206.

Natural Order LABIATE.

Tribe MONARDEÆ.

Genus SALVIA, Linn.

Section CALOSPHECE, Benth.

S. MENTIENS (*Pohl, Ic. Bras.* p. 137, t. 193). Herbacea, erecta, caulibus deorsum glabris sursum pubescentibus, foliis petiolatis ovatis acutis serratis utrinque viridibus glabris, bracteis late ovatis acuminatis coloratis deciduis, racemis simplicibus modice densis, calycibus membranaceis coloratis accrescentibus tubuloso-campanulatis dentibus subpatentibus deltoideis, corollis coccineis calyce quadruplo longioribus tubo ventricoso labiis brevibus, stylo glabro corolla subæquante.—*Benth. in D.C. Prodr.* xii. 330.

A native of the neighbourhood of Rio Janeiro.

Stems herbaceous, a foot and a half to two feet high, sparingly branched, erect, the lower part glabrous, the upper finely pubescent. *Lower petioles* glabrous, an inch and a half to two inches long. *Leaves* herbaceous, green and glabrous on both sides, ovate, acute, finely toothed, the lower ones three to four inches long, the base rounded with a short haft. *Raceme* half a foot long when fully developed, the upper part dense. *Bracts* broad-ovate, acute, brightly coloured, conspicuous in the early stage but soon deciduous. *Pedicels* downy, two to three lines long. *Calyx* finely pubescent, tubuloso-campanulate, bright-coloured, at first four to five lines long, with spreading deltoid teeth rather shorter than the tube, membranous and accrescent after the corolla falls. *Corolla* bright scarlet, sixteen to eighteen lines long, the tube stout, ventricose, subglabrous, three times as long as the calyx, the lips reaching scarcely a quarter of the way down. *Style* glabrous, like the *stamens* included in the corolla.

Closely allied to the well-known *S. splendens* (Bot. Reg. t. 687) and the Mexican *S. involucrata* (Bot. Reg. t. 1205; Bot. Mag. t. 2872).

Tab. 206.—1, entire flower, side view; 2, ditto from beneath; 3, pistil: all magnified.—*J. G. B.*

This is another interesting and beautiful species of *Salvia*, with a close compact head of rosy pink flowers and scarlet bracts, which is well worthy of cultivation. It requires warm greenhouse or conservatory treatment, is easily propagated by cuttings, and when grown in rich sandy loam thrives well and flowers freely.—
W. W. S.

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Solanum atropurpureum, Schrank.

TAB. 207.

Natural Order SOLANACEÆ.

Genus SOLANUM, *Linn.*

Section LEPTOSTEMUM.

Sub-sect. ACANTHOPHORA (see Tab. 37).

S. ATROPURPUREUM (*Schrank, Syll. Pl. Nov. Ratisb.* 1824, p. 200).

Ramis glabris nitidis atro-purpureis aculeatissimis, aculeis rectis deflexis lateraliter compressis valde inæqualibus, foliis deltoideis profunde pinnatifidis utrinque glabris vel subglabris, petiolis exalatis, cymis laxis 4—6-floris, baccis magnis glabris globosis.—*Sendt. in Fl. Bras.* v. 62; *Dunal in D. C. Prodr.* xiii. 242.

A native of the southern provinces of Brazil.

A copiously-branched erect shrub several feet high, the branches erecto-patent, like the *spines* a shining dark purple, quite glabrous. *Prickles* very dense and unequal, not very strong, straight, slender, deflexed, laterally compressed, the largest quite an inch long. *Petioles* prickly, not winged, the lower ones twelve to eighteen lines long. *Leaves* herbaceous, quite or nearly glabrous, bright green above, rather paler below, subdeltoid, five to six inches long, deeply pinnatifid, the upper divisions lanceolate, entire, the lower ones more or less toothed, the mid-rib and main veins on both sides more or less prickly. *Flowers* four to six together in shortly pedunculated axillary *cymes*. *Pedicels* prickly, three to nine lines long. *Calyx* glabrous, prickly, two to three lines deep, deeply five-cleft with lanceolate-deltoid ascending lobes. *Corolla* yellowish, five to six lines deep, split nearly to the base. *Berry* half an inch in thickness, globose, quite glabrous.

Tab. 207.—1, entire flower; 2, stamen; 3, flower with corolla and stamens removed; 4, ovary; 5, horizontal section of the same: all magnified,—*J. G. B.*

This is a very ornamental plant for foliage, from the peculiar and abundant way the stems and leaves are clothed with long dark purple spines. It does well in the open borders during the summer months, in situations protected from the wind, and should have a warm greenhouse treatment in the winter. It should be propagated by seeds sown in heat, or cuttings struck in a warm temperature.—*W. W. S.*

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W. H. Fitch, del. et lith.

J. N. Fitch, imp.

Hebecladus ventricosus, Baker.

TAB. 208.

Natural Order SOLANACEÆ.

Tribe SOLANEE.

Genus *HEBECLADUS* (Miers, *Hook. Lond. Journ.* iv. 321). Calyx brevis, 5-dentatus, persistens. Corolla tubulosa vel campanulata lobis 5 patentibus lanceolatis tubo multo brevioribus sæpe dentibus totidem interjectis. Stamina 5, prope basin tubi inserta filamentis filiformibus, antheris oblongis longitudinaliter dehiscentibus. Ovarium globosum, glabrum, biloculare, pluriovulatum, placentis dissepimento adnatis; stylus elongatus, filiformis; stigma parvum, capitatum. Bacca globosa, calyce persistente suffulta. Semina plurima, in pulpa nidulantia. — Dunal in *D.C. Prodr.* xiii. 468; *Atropa*, *Auct. ex parte*.

H. *VENTRICOSUS* (Baker). Fruticosa, ramis glabris haud volubilibus, foliis breviter petiolatis herbaceis subglabris ovatis acutis integris vel paullulum sinuato-dentatis, floribus ex axillis nutantibus breviter pedunculatis solitariis vel geminatis, calycibus flore expanso horizontaliter patentibus dentibus lanceolatis recurvatis, corollis pallide flavis subæquilongis ac latis ventricoso-campanulatis fauce constrictis lobis lanceolatis recurvatis dentibus acutis interjectis, staminibus et stylo longe exsertis.

A native of Peru, discovered and sent by Mr. Farris.

An erect shrub three to four feet high, with copious woody ascending glabrous shining green *branches*, the young ones tinged with purple. *Leaves* shortly stalked, herbaceous, ovate, acute, entire or slightly sinuato-dentate, the largest an inch and a half to two inches long, the upper surface a bright medium green, the lower paler, the edge inconspicuously ciliated. *Flowers* one or two together on short drooping *peduncles* from the axils of the leaves. *Calyx* finely pubescent, obconical at first, spreading horizontally when the flower expands, half an inch broad, the short lanceolate teeth recurved. *Corolla* pale yellow, half an inch broad and deep, campanulato-ventricose, constricted at the throat, the limb with ten recurved lanceolate teeth, the intermediate ones smaller. *Stamens* much exserted, the *style* ultimately twice the length of the corolla. *Fruit* a large glabrous poisonous berry, the *calyx* membranous and very persistent.

This differs from all the species described by Dunal in the shape of the corolla. In other respects it is nearest *H. viridi-*

florus, Miers (*Atropa viridiflora*, H. B. K. Nov. Gen. t. 196), but the leaves are bright-coloured and subglabrous and the stems not at all twining.

Tab. 208.— 1, entire flower; 2, corolla cut open; 3, calyx and pistil; 4, horizontal section of ovary: all magnified.—*J. G. B.*

I am indebted to Mr. Farris for the seeds of this plant, procured in Peru, which are said to be poisonous. It thrives well, cultivated in a cool greenhouse, grown in sandy loam and peat, and allowed plenty of pot room. In the summer season it will do well out of doors. The plant is of more botanical than of horticultural interest.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Euphorbia oxystegia, Boiss.

TAB. 209.

Natural Order EUPHORBIACEÆ.

Tribe EUPHORBIÆ.

Genus EUPHORBIA, *Linn.*Section EUPHORBIIUM, *Boiss.*

E. OXYSTEGIA (*Boiss. Cent. Euph.* p. 27). Fruticosa, simplex vel parce ramosa, podariis depressis rhomboideis spiraliter seriatis, foliis laxis subsessilibus oblanceolatis obtusis vel subacutis herbaceis utrinque glabris, capitulis paucis laxe corymbosis, pedunculis foliis longioribus persistentibus haud spinosis, foliis floralibus late ovatis acutis patulis, involucris solitariis campanulatis, glandulis integris orbiculatis, bracteis et filamentis hirsutis, capsulis glabris lævibus, stylis basi connatis.—*Boiss. in D.C. Prodr.* xv. part 2, p. 90.

A native of Cape Colony, gathered by Drege, Burchell, Cooper, McOwan, &c.

Stems shrubby, erect, attaining a height of three or four feet, simple or sparingly branched, round, an inch thick, laxly leafy towards the apex. *Podaria* rhomboid, spirally seriate, an inch deep, glaucous when young. *Leaves* subsessile, oblanceolate, herbaceous, four to six inches long by twelve to fifteen lines broad three-quarters of the way up, narrowed gradually from half-way down to the base, blunt or subacute, pale green, both sides quite glabrous. *Heads* several in a lax corymb on erectopatent *peduncles* which exceed the leaves and are persistent, but fragile on the old stems. *Pedicels* single-headed, the floral leaves two or three, if the latter, broadly imbricated, broad-ovate, acute, spreading, rather fleshy, glabrous or finely downy. *Involucre* campanulate, glabrous or finely downy, the glands bright yellow, suborbicular, entire. *Bracts* and *filaments* hairy. *Capsule* quite smooth and glabrous, the *styles* connate at the base.

Tab. 209.—1, involucre, with cluster of flowers, side view; 2, the same viewed from above; 3, male flower; 4, pistil: all magnified.—*J. G. B.*

The seeds of this peculiar *Euphorbia*, which has but little beauty to recommend it, I received from Mr. T. Cooper, and were gathered in South Africa. It grows without difficulty in a cool greenhouse, potted in light sandy loam, and should have but little water during the winter.—*W. W. S.*

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W. H. Fitch, del et lith

J. N. Fitch, imp

Euphorbia stygiana. Wats.

TAB. 210.

Natural Order EUPHORBIACEÆ.

Tribe EUPHORBIEÆ.

Genus EUPHORBIA, Linn.

Section TITHYMALUS, Boiss.

E. STYGIANA (Wats. in Hook. Lond. Journ. iii. 605). Fruticosa, sparse ramosa, ramis crassis erectis superne dense foliosis, foliis subsessilibus oblanceolatis obtusis vel subacutis coriaceis utrinque glabris vel infra leviter pubescentibus nervo medio manifesto, venulis inconspicuis, capitulis corymboso-paniculatis, foliis floralibus oblongis vel obovatis dense ciliatis superioribus obtusis, involucris campanulatis extus et intus hirsutis, glandulis integris orbiculatis, bracteis dense ciliatis, capsulis glabris sparse verrucosis, stylis liberis emarginatis.—Boiss. in D.C. Prodr. xx. 2, 108.

A native of the Azores.

An erect sparingly-branched shrub several feet high, the numerous *leaves* densely aggregated towards the apex of the stout woody glabrous rod-like *stems*, which are prominently marked in the lower part with the raised scars of the leaves which have fallen. *Leaves* coriaceous, oblanceolate, subsessile, four to six inches long by twelve to fifteen lines broad three-quarters of the way up, ascending, blunt or subacute, narrowed gradually from half-way down to the base, glabrous on both sides or finely pubescent beneath, the midrib prominent beneath, but the veining of the blade not conspicuous. *Heads of flowers* very numerous, with a strong smell of honey, arranged in a corymbose panicle which slightly overtops the leaves. *Floral leaves* membranous, concave, obovate or oblong, pubescent principally on the edge, the upper ones blunt. *Involucres* campanulate, pubescent, the appendages suborbicular, entire, bright yellow. *Bracts* densely fringed with cottony pubescence. *Capsule* slightly verrucose, glabrous, the emarginate *styles* free to the base.

Very near the Madeiran *E. mellifera*, Ait. Bot. Mag. 1305, from which it differs principally by its more coriaceous leaves, with a stronger midrib but less conspicuous venation beneath, and by the vestiture of the inflorescence.

Tab. 210.—1, 2, involucre and head of flowers; 3, the same cut down the centre; 4, stamen; 5, the same with its subtending scale: all magnified.—J. G. B.

A very free-growing species, with long rather succulent leaves, requiring only a slight protection during the winter. Light sandy loam seems to be its favourite soil, and it should be allowed plenty of pot room. I obtained my plants from the collection of the late W. Borrer, Esq., of Henfield.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch, imp.

Peperomia Botterii, C.D.C.

TAB. 211.

Natural Order PIPERACEÆ.

Genus PEPEROMIA, *R. & P.*

- P. BOTTERII* (*C. D. C. in Seem. Journ.* 1866, p. 146). Caulibus gracilibus teretibus pubescentibus deorsum procumbentibus, foliis petiolatis ternis obovatis modice carnosis utrinque pubescentibus binervatis nervis lateralibus evanescentibus, amentis gracilibus breviter pedunculatis axillaribus terminalibusque, floribus densis, bracteis rotundatis peltatis, stigmatibus sessilibus obliquis.—*C. D. C. Prodr.* xvi. 459.

A native of Mexico, discovered by M. Botteri, after whom it is named.

Stems sparingly branched, procumbent at the base, the upper part ascending, slender, terete, green or tinged with purple, clothed with short spreading gray pubescence. *Leaves* in threes, decurved, the *petioles* three to six lines long, pubescent, erecto-patent, the blade obovate, subacute, moderately fleshy in texture, when full-grown about an inch long, minutely downy on both sides, a pale rather glaucous green above, very pale green beneath, the veins immersed, three principal ones branching from the apex of the petiole, the lateral ones vanishing about half-way up. *Catkins* slender, cylindrical, on very short erecto-patent downy *peduncles* on the end of the stem and from the axils of a few of the leaves, fifteen to eighteen lines long when fully developed. *Flowers* dense, the *bracts* orbicular, peltate, the papillose sessile *style* obliquely placed on the partially emergent ovary.

Closely allied to *P. blanda* (Hook. Exotic Flora, t. 12), from which it principally differs by its broader leaves and shorter peduncles and catkins. In the general habit and veining of the leaves it resembles *P. rotundata*, H. B. K., which has the leaves in pairs only and a central stigma.

Tab. 211. — 1, pair of leaves; 2, portion of spike; 3, single flower, front view; 4, side view of flower: all magnified.—*J. G. B.*

Many of the *Peperomias*, and this among the number, have an elegant habit of growth, and are well suited for baskets or shallow pots, which they soon cover with their branching stems, and hang prettily over the rims. This species should be grown in turfy peat in the stove, and allowed plenty of moisture, and never exposed to the sun. I received it from Mexico.—*W. W. S.*

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W.H. Fitch del et lith

J.N. Fitch imp.

Zephyranthus sessilis, Herb.

TAB. 212.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLEÆ.

Genus ZEPHYRANTHES (*Herbert, Amaryll. p. 72*). Perigonium superum, corollinum, e tubo supra ovarium brevi infundibulare, segmentis 6 subæqualibus oblongo-spathulatis. Stamina 6, ad basin segmentorum inserta, segmentis breviora, filamentis filiformibus erectis vel leviter declinatis, antheris linearibus versatilibus. Ovarium inferum, triloculare; ovula in loculis crebra, angulo interiori inserta; stylus filiformis; stigma trilobum. Capsula membranacea, loculicide trivalvis; semina in loculo singulo numerosa, planiuscula: testa nigra. Herbæ bulbosæ americanæ.

Z. SESSILIS (*Herb. Amaryll. p. 175*). Foliis 5—6 erectis synanthiis anguste linearibus modice firmis viridibus, scapis 2—3 filiformibus erectis unifloris foliis paulo brevioribus, spathis bivalvis, haud ultra medium fissis, floribus in spathis sessilibus segmentis lanceolato-spathulatis albis precipue extus rubro-tinctis tubo longioribus, filamentis rectis antheris subæquantibus, staminibus et stylo filiformi recto haud exsertis.—*Kunth, Enum. v. 487*.

A native of Mexico.

Bulb oblong, tunicated. *Leaves* about half a dozen, contemporaneous with the flowers, nearly flat upwards, narrow-linear, erect, eight to nine inches high when the plant is in flower, two to three lines broad, shining, not at all glaucous, moderately firm in texture, the veins not prominent. *Scapes* two or three from a root at once, always single-flowered, rather shorter than the leaves, pale green, slightly compressed. *Flowers* sessile in the closely-adpressed *spathe*, the two subequal lanceolate divisions of which do not reach above half-way down. *Perianth* about two inches deep, at first more or less tinged with red especially externally, erect, the funnel-shaped tube eight to nine lines long above the oblong *ovary*, the lanceolate-spathulate divisions about an inch deep. *Filaments* quite erect, equalling the anthers. *Style* straight, falling short of the stamens, and both considerably shorter than the segments. *Capsule* roundish, trisulcate, membranous, the *seeds* eight to twelve in a cell, subdiscoid, with a shining black testa.

There appears to be only one clearly-marked species of *Zephyranthes* with the flower sessile in the spathe. We give the plant

from Mr. Saunders' recently-imported specimens. *Z. verecunda*, Bot. Mag. 2583, *Z. striata*, Bot. Mag. 2593, *Z. Ackermannia*, Roem., and *Z. Grahamiana*, Herb., appear to be all only slight varieties of this one species.

Tab. 212.—1, flower with segments of the limb cut away; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

This is a very pretty free-flowering species, which I received from Mexico, sent from thence by Mons. Boucard. It should be grown in well-drained pots, in a mixture of sandy loam and peat, and the bulbs should not be allowed to become dry at any season. It requires a cool airy greenhouse or pit, and should be kept as near the light as practicable.—*W. W. S.*

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W.H. Fitch, del. et lith.

J.N. Fitch imp.

Hemerocallis Dumortieri, Morren.

TAB. 213.

Natural Order LILIACEÆ.

Tribe HEMEROCALLIDEÆ.

Genus HEMEROCALLIS, *Linn.*

- H. DUMORTIERI* (*Morren, Belg. Hort.* ii. p. 95, t. 43). Foliis viridibus sesquipedalibus, scapis teretibus foliis paullulum brevioribus, floribus paucis (2—4) breviter pedicellatis saturate flavis, tubo perbrevis vel subnullo, segmentis interioribus margine anguste membranaceis venulis leviter anastomosantibus, staminibus et stylo segmentis subduplo brevioribus. — *H. graminea*, *Schlecht. non Andrews. H. rutilans* and *Sieboldii, Hort.*

A native of Japan and Western Siberia.

Leaves about half a dozen to a scape, fifteen to eighteen inches long, half an inch broad in the lower part, firm in texture, narrowed gradually to a point, bright green above, paler, not at all glaucous beneath. *Scape* erect, terete, green, rather shorter than the leaves. *Flowers* two to four, on *pedicels* three to six lines long, subtended by lanceolate *bracts* which equal or slightly exceed them, slightly odorous. *Perianth* two inches long, a more orange-yellow than in *H. flava*, the tube very short or sometimes none, the outer divisions firm in texture, oblong-spathulate, three-eighths of an inch broad, the inner ones a little wider, membranous and undulated at the edge, and the marginal veins anastomosing a little. *Stamens* and *style* scarcely more than half as long as the segments.

Closely allied to *H. minor*, Mill. Dict. No. 2 (*H. graminea*, Andrews, Bot. Rep. t. 244), but a stronger plant, with leaves twice as broad, shorter pedicels and a shorter tube. In the form drawn the flower was split down to the very base, and the pistil monstrous.

Tab. 213. — 1, single stamen; 2, monstrous pistil of twelve carpels: both magnified.—*J. G. B.*

I have cultivated this little-known, hardy, showy species for some time in the open borders, where it will thrive in any good soil, flowering freely and for a long period.—*W. W. S.*

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W.H. Fitch del. et lith.

J.N. Fitch imp.

Asparagus virgatus, Baker

TAB. 214.

Natural Order LILIACEÆ.

Sub-order ASPARAGÆÆ.

Genus ASPARAGUS, Linn.

- A. VIRGATUS (*Baker*). Fruticosa, erecta, 4—5-pedalis, caule primario dimidio inferiore nudo, dimidio superiore copiose divaricatim ramoso, ramulis gracilibus virgatis angulatis sulcatis, foliis minutis inconspicuis lanceolatis membranaceis calcare nullo modo spinoso, cladodiis ternis setiformibus mucronatis erecto-patentibus internodis subæquantibus facile deciduis, floribus sparsis solitariis e nodis plerisque efoliatis nutantibus, pedunculis brevibus gracilibus infra medium articulatis.—*A. sylvaticus*, Burchell, MSS., non Willd.

A native of Cape Colony.

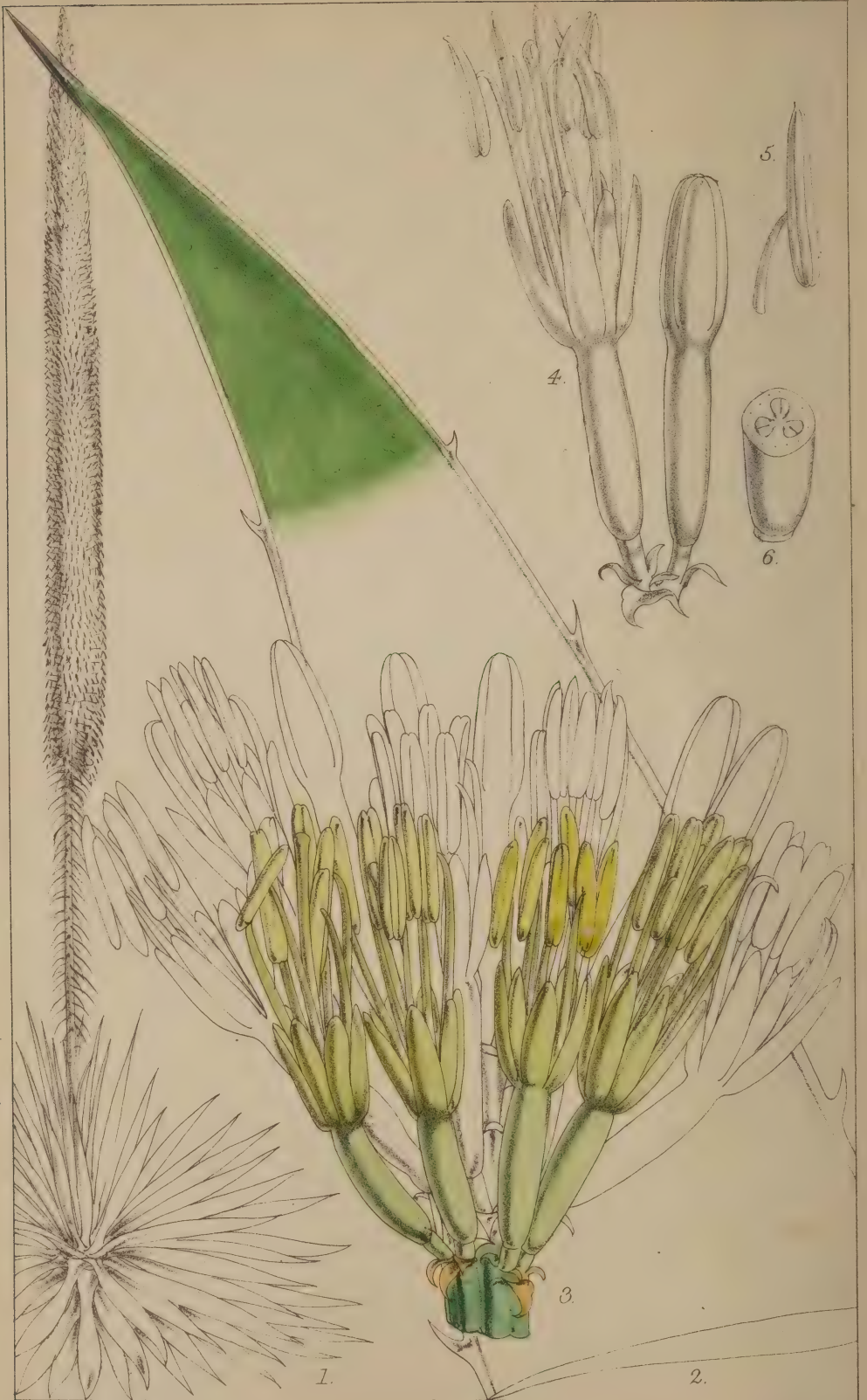
Stem fruticose, four to five feet high, quite erect, the lower half naked, clothed sparsely with the small membranous lanceolate old leaves, the upper half copiously divaricately branched. *Lower main branches* subpatent, twelve to eighteen inches long. *Ultimate branchlets* very long and slender, drooping, trigonous, the faces deeply channelled. *Leaves* (or stipules) of the branchlets lanceolate, membranous, very minute, the spur not at all indurated. *Cladodia* three to a fascicle, three-eighths to half an inch long, about equalling the internodes, erecto-patent, mucronate, not at all compressed, easily deciduous. *Flowers* sparingly produced from the nodes of the branchlets, always solitary, drooping, with the cladodia of the node from which they spring generally but not invariably abortive. *Pedicels* very slender, three to four lines long, articulated below the middle. *Perianth* an eighth of an inch deep, pale green, tinged with purplish brown. *Stamens* slightly exceeding the divisions. *Style* longer than the ovary. *Fruit* a small round berry.

The only other Cape species with fruticose erect spineless non-scandent stems is *Asparagopsis scoparia* of Kunth, from which this will be readily distinguished by the characters given.

Tab. 214. — 1, portion of branch, with a pair of flowers; 2, single flower; 3, pistil; 4, horizontal section of ovary: all magnified.—J. G. B.

A neat-growing much-branched species of *Asparagus*, received from the Cape of Good Hope, collected there by Mr. T. Cooper. It requires cool greenhouse treatment, and should be grown in rich loam, and supplied while growing with plenty of water. It is propagated by divisions of the root and by seed.—W. W. S.

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W. H. Fitch, del et lith.

J. N. Fitch, imp.

Agave univittata, Haw.

TAB. 215.

Natural Order AMARYLLIDACEÆ.

Tribe AGAVEÆ.

Genus AGAVE, *Linn.*

- A. UNIVITTATA (*Haworth, Phil. Mag.* x. 414). Acaulis, foliis 50—60 dense rosulatis lineari-spathulatis strictis sesquipedalibus rigide mucronatis margine distincte corneis spinis uncinatis validis præditis, facie extorsum planiusculis perviridibus linea flavâ mediana percursis, dorso convexis, basi cite dilatatis, scapo (spica inclusa) 15—16-pedali, bracteis filiformibus floribus æquantibus, floribus flavo-viridibus geminatis vel ternis breviter pedicellatis, tubo cylindraceo supra ovarium haud constricto, filamentis limbi segmentis duplo longioribus.—*Kunth, Enum.* v. 835; *Jacobi, Hamb. Gartenzeit.* xx. 544.

A native of Mexico.

Not at all caulescent. *Leaves* fifty to sixty in a dense rosette, rigid, linear-spathulate, dark green when young, marked down the face with a broad yellow band which fades as they mature, the fully-developed ones eighteen to twenty-one inches long by two and a quarter to two and a half inches broad three-quarters of the way up, the point a strong pungent brown spine, the edge with a distinct horny border furnished at intervals of six to eighteen lines with strong hooked reddish brown or finally gray spines of the same texture, the face flat except towards the base, the back convex, the upper ones erect, about half an inch thick in the centre of the blade, but double that at the base, the lower ones spreading horizontally. *Scape* in the specimen drawn four feet high exclusive of the spike. *Spike* eleven to twelve feet long, six to seven inches thick when the flowers are expanded. *Bracts* filiform, equalling the expanded flowers. *Flowers* two or three together on very short *peduncles*. *Perianth* an inch and a half long, the tube two-thirds of this, cylindrical, not at all constricted above the ovary, the divisions of the limb lanceolate, greenish yellow. *Filaments* twice as long as the segments.

Tab. 215.—1, whole plant, much reduced; 2, apex of leaf; 3, cluster of flowers: both natural size. 4, pair of flowers; 5, stamen; 6, horizontal section of ovary: all magnified.—*J. G. B.*

The genus *Agave* is now receiving much attention at the hands of cultivators, and, from the greater age of the plants and better treatment, many are flowering, and showing characters in their inflorescence which seem to be of value in a botanical point of view. It is therefore very desirable that as many should be carefully figured as possible, to ascertain, from among the great number which have but small differences of foliage, those which may be specifically distinct. As ornamental-foliaged noble plants, for decorating the out-of-doors garden, few exceed the *Agave* when well grown (not starved, as is usually the custom). The species figured is a native of Mexico, with dark green shining leaves, each leaf with a yellow-green well-marked longitudinal median band. It is very ornamental, and one of the medium-sized species, growing freely in a mixture of sandy loam and peat. In winter it requires a cool airy greenhouse, and in-doors or out it should be allowed plenty of light and air.—
W. W. S.

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W.H. Eitch, del et lith

J.P. Eitch, imp

Chlorophytum elatum. R.Br.

TAB. 216.

Natural Order LILIACEÆ.

Tribe ANTHERICEÆ.

Genus CHLOROPHYTUM (*Gawl. Bot. Mag. t. 1071*). Perianthium 6-partitum, corollinum, segmentis oblanceolatis subæqualibus persistentibus flore expanso stellatim patentibus vel recurvatis. Stamina 6 hypogyna, filamentis filiformibus subæqualibus glabris, antheris oblongis versatilibus. Ovarium sessile, obovoideum, triloculare, ovulis in loculis plurimis biseriatis; stylus filiformis; stigma capitatum. Capsula membranacea, loculicide-trivalvis, profunde emarginata, loculis pluriovulatis dorso angulatis. Herbæ radicibus carnosio-fibrosis floribus racemosis vel paniculatis.

C. ELATUM (*R. Br. Prodr. Fl. Nov. Holl. p. 277*). Foliis 8—12 loratis firmis pedalibus vel sesquipedalibus ad apicem acutum sensim angustatis, scapis erectis teretibus foliis subæquantibus, floribus in paniculis ramis paucis erecto-patentibus racemosis deorsum nudis dispositis, pedicellis erecto-patentibus perianthio triplo brevioribus, perianthii segmentis albis filamentis multo longioribus. — *Kunth, Enum. iv. 604. Phalangium elatum, Red. Lil. t. 191. Anthericum elatum, Ait. Kew, i. 448.*

A native of the Cape of Good Hope.

Root a fascicle of fleshy fibres. *Leaves* eight to twelve to a root, firm in texture, lorate, clasping the scapes tightly at the base, reflexed in the upper half, narrowed gradually to an acute point, when fully developed twelve to eighteen inches long by twelve to eighteen lines broad, the veining not conspicuous, the upper surface bright green, the lower paler. *Scapes* one to three from a root at once, terete, firm, erect, about equalling the leaves. *Inflorescence* an ample panicle composed of a terminal raceme sometimes a foot long and several erecto-patent smaller lateral ones naked at the base. *Upper flowers* solitary, the lower ones two to four together. *Pedicels* erecto-patent, a line and a half to two lines long, articulated below the middle. *Bracts* minute, deltoid, membranous. *Perianth* three-eighths to half an inch deep, the divisions white, with the keel slightly greenish, subequal, oblanceolate, star-like or slightly reflexed when expanded. *Stamens* subequal, glabrous, the *filaments* a little thickened upwards. *Fruit* a firm obovate-triquetrous many-seeded deeply emarginate capsule about four lines deep.

Tab. 216. — 1, single flower; 2, stamen; 3, pistil; 4, horizontal section of ovary; 5, immature fruit: all magnified.—*J. G. B.*

A very pretty free-flowering species, lasting in bloom a long time. It requires a cool airy greenhouse, and should be grown in turfy loam with a little peat, and abundantly supplied with water while growing. I received it from South Africa, collected by Mr. Thos. Cooper.—*W. W. S.*

APPENDIX.

MONOGRAPH OF SCILLA: § LEDEBOURIA AND DRIMIOPSIS.

Another set of plants, of which, as in *Cotyledon* § *Echeveria*, there are a large number of species which have not been named and described, is the group of bulbs, inhabiting principally the Cape of Good Hope, of which *Hyacinthus revolutus* of Linnæus and *Lachenalia lanceæfolia* of Jacquin are the best-known representatives. They constitute the genus *Drimia*, as defined by Kunth (Enum. vol. iv. p. 338); but the whole question of the limitation, nomenclature, and mutual relations of this genus, and those that border upon it, needs a complete revision, founded upon fuller material than Kunth had at his command; and it becomes necessary, in the first place, to clear the way by attempting to arrive at a clear understanding upon these points.

We believe that the best characters for tribes in these capsular *Liliaceæ* are those furnished by the general character of the roots, by the general arrangement of the flowers, and by the cohesion of the divisions of the perianth. Following out this idea, we would define for the racemose bulbs two tribes, one called *Hyacintheæ*, for which the genus *Hyacinthus*, as characterized under Tab. 174, is typical, in which the six divisions are united into a distinct cup or tube; and the other called *Scilleæ*, in which they are free down to the base.

As originally circumscribed by Jacquin, *Drimia* in our view forms a well-marked genus of the tribe *Hyacintheæ*, taking its place, by the character of its seeds, by the side of *Uropetalum*, and representing in *Hyacintheæ* the genus *Urginea* in *Scilleæ*, in the same way that *Hyacinthus* answers to *Scilla*. It was, we think, under a complete misapprehension that Gawler put into it his *D. lanceæfolia*, which Jacquin had described under *Lachenalia*, inasmuch as it wants all the distinctive characters upon which *Drimia* as a genus can be upheld. Unfortunately *lanceæfolia*,

being a plant which at that time was widely diffused in cultivation, got to represent popularly the idea of *Drimia*; and Kunth, who saw that it was impossible to characterise genera and keep *lanceæfolia* and the Jacquinian *Drimia* together, unaccountably restricted *Drimia* to *lanceæfolia* and the plants which corresponded with it in structure, and made for the Jacquinian *Drimia* a new genus under the name of *Idothea*.

The following are the characters of *Drimia* and an enumeration of the species, reverting to the original idea and definition of the genus.

Tribe HYACINTHEÆ. Herbæ bulbosæ racemosæ perigonii campanulato-vel infundibuliformi-vel tubuloso-gamophyllis.

GENUS DRIMIA, *Jacq. Icones*, t. 373—7, *non Kunth*. Perigonium corollinum, campanulato-gamophyllum, laciniis æqualibus ligulatis cucullatis mox irregulariter reflexis tubo duplo vel triplo longioribus. Ovarium sessile, ovoideum, triloculare, ovulis in loculis numerosis (6—20); stylus filiformis, elongatus, rectus vel leviter declinatus; stigma capitatum. Stamina ex fauce tubi subuniseriata, filamentis elongatis laciniis subæquantibus, paullulum inæqualibus, interdum leviter declinatis, deorsum applanatis, valvatis conniventibus, sursum filiformibus, antheris oblongis versatilibus. Capsula membranacea, sessilis, profunde trisulcata, loculicide trivalvis, seminibus in loculis paucis vel pluribus complanatis alatis uniseriatis. Testa nigra, membranacea. Herbæ bulbosæ capenses, foliis plurimis synanthiis vel hysternanthiis floribus numerosis racemosis.

ENUMERATION OF SPECIES.

* Leaves contemporaneous with the flowers.

† Leaves filiform, rigid.

1. *D. media*, Jacq. Coll. Suppl. p. 40; *Icones*, ii. p. 15, t. 375. *Hya-cinthus medius*, Poir. *Encyc. Suppl.* iii. p. 120. *Idothea media*, Kunth, *Enum.* iv. p. 342.
2. *D. purpurascens*, Jacq. fil. *Eclog.* p. 48, t. 30. *Idothea purpurascens*, Kunth, *Enum.* iv. p. 342.

* Leaves fleshy-herbaceous, lorate-lanceolate.

3. *D. humilis*, Berg. teste Kunth. *D. Eckloniana*, Roem. & Schultz, *Syst.* vii. p. 1710. *Idothea humilis*, Kunth, *Enum.* iv. p. 344.
4. *D. Burchellii*, Baker, n. sp. Folia synanthia, carnosio-herbacea, lorato-lanceolata, glabra, 7—8 poll. longa, 1 poll. lata. Scapus foliis sub-

æquans. Racemus 8—9 poll. longus, 1 poll. latus, 60—100-florus. Pedicelli erecto-patentes, 2—3 lin. longi, bracteis linearibus sub-æquantes. Perigonium 5—6 lin. longum, laciniis tubo triplo longioribus. C. B. S.—*Burchell*, 4769! *Zeyher*, 754!

5. *D. robusta*, Baker, tab. nostra, 190.

6. *D. altissima*, Hook. Bot. Mag. t. 5532, non Gawler.

* Leaves developed after the raceme.

7. *D. elata*, Jacq. Coll. Suppl. p. 38; Icon. ii. p. 15, t. 373; Red. Lil. t. 430; Bot. Mag. t. 822. *Hyacinthus elatus*, Poir. Encyc. Suppl. iii. p. 120. *Idothea elata*, Kunth, Enum. iv. p. 343.

8. *D. ciliaris*, Jacq. Coll. Suppl. p. 41; Icon. ii. p. 15, t. 377; Bot. Mag. t. 1444. *Hyacinthus ciliaris*, Poir. Encyc. Suppl. iii. p. 120. *Idothea ciliaris*, Kunth, Enum. iv. p. 343.

9. *D. villosa*, Lindl. Bot. Reg. t. 1346. *Idothea villosa*, Kunth, Enum. iv. p. 343.

10. *D. pusilla*, Jacq. Coll. Suppl. p. 12; Icon. ii. p. 15, t. 374. *Idothea pusilla*, Kunth, Enum. iv. p. 344.

Tribe SCILLEÆ. Herbæ bulbosæ racemosæ perigoniis ad basin sex-partitis.

Turning next to the genera with the flowers cut down to the base, we do not think that several genera admitted by Kunth can be maintained as distinct from *Scilla*, inasmuch as they either coincide absolutely with some of the undisputed *Scillæ* in all points of structure, or there is only a slight difference which is bridged over by gradual stages. As defined in the 'Enumeration,' *Scilla* includes the large number of blue-flowered species in which the segments spread from the base in the expanded flower and the filaments spring from the base of the segments, and also the common Wild Hyacinth of our woods (*S. nutans*, Smith), in which the segments, though not confluent, connive permanently for the lower third, and have the filaments adnate to them for a third or half their length; and we do not think that anyone who has studied how gradually this type of perianth runs into that of typical *Scilla*, through the intermediate stage of *S. campanulata*, will incline to separate them as distinct genera.

In *Drimia* of Kunth we have a perianth like that of *Agraphis* in shape, but never blue, and with the divisions more fully reflexed, in combination with an ovary like that of *S. autumnalis*, with two collateral ascending ovules in each of the cells. The Abyssinian *Eratobotrys* of Fenzl and Indian *Ledebouria* of Roth quite agree with this in general habit, the shape and colour of the perianth, and structure of the ovary, differing only very slightly in the external shape of the ovary. *Barnardia* of Lindley was separated from *Scilla* on the ground of having only a single ovary in each cell, but it entirely agrees with *Scilla* in habit and all other characters; and *S. parviflora*, Desf., from Barbary, which Steinheil has also separated as a genus under the name of *Stellaris*, is also uniovulate. Kunth's three South-America *Scillæ* (*chloroleuca*, *geminiflora* and *biflora*) fit better with *Ornithogalum*. *Camassia*, we think, may be justifiably regarded as a genus distinct from *Scilla*, differing from it by its hypogynous filaments and many-nerved segments, and including not only *esculenta*, which Kunth puts there, but also *Fraseri*, which he places in *Scilla*, and the Floridan *S. angusta* of Engelman and Gray, which is scarcely specifically distinct from *Fraseri*. Adopting the limitation thus sketched out, we get a genus entirely restricted to the Old World, which may be characterised and divided into three sub-genera as follows:—

Genus *SCILLA*, Linn. Perigonium corollinum, 6-partitum, saturate cæruleum vel roseo-purpureum, raro viride vel albidum, laciniis æqualibus ligulatis vel oblongo-ligulatis ex imo basi patentibus vel pro tertio vel dimidio inferiore diutine conniventibus, nunquam multinervatis nec distincte viridi-vittatis. Ovarium triloculare, sessile vel breviter stipitatum, loculis 1, 2 vel multi-ovulatis; stylus elongatus, filiformis; stigma capitatum, mox leviter trisulcatum. Stamina semper distincte perigyna, plerumque ex imo basi laciniarum uniseriata, filamentis elongatis filiformibus vel deorsum leviter applanatis, in specie unica ad tertiam inferiorem laciniarum vel ultra adnatis; antheræ parvæ, oblongæ, versatiles. Capsula membranacea, globosa vel ovoidea, sessilis vel breviter stipitata, loculicide-trivalvis, seminibus in loculis solitariis vel paucis, parvis, rotundatis, nullo modo compressis nec alatis, sæpe vix funiculatis interdum basi arillatis. Herbæ bulbosæ pleræque humiliores foliis plerisque synanthiis floribus racemosis numerosis bracteis solitariis vel geminatis linearibus vel deltoideis raro obsoletis. Regiones temperatæ vel raro tropicales veteris orbis.

Sub-genus *EUSCILLA*. Flores cæruleæ, raro roseo-purpureæ vel albidæ, laciniis ex imo basi patentibus. Filamenta ex basi laciniarum uniseriata, elongata, deorsum leviter applanata. Ovarium sessile, loculis 1, 2 vel multiovulatis. Bracteæ lineares, solitariae vel geminatae, vel parvæ deltoideæ, raro obsoletæ. — *Scilla*, Kunth. *excl. sp.* 23, 24, 25, 28, 31, 37. *Barnardia*, Lindl., Kunth. *Stellaris*, Steinh. *Adenosquilla*, Gren. *Nectarosquilla*, Parl.

Sub-genus *LEDEBOURIA*. Flores roseo-purpureæ vel purpureo-virides vel raro omnino virides (nunquam cæruleæ) laciniis pro tertio vel dimidio inferiore diutine conniventibus, sursum falcato-reflexis. Filamenta ex basi laciniarum uniseriata, elongata, filiformia. Ovarium sæpissime breviter stipitatum, basi ampliato, loculis semper biovulatis. Bracteæ parvæ, deltoideæ vel raro lineares. — *Ledebouria*, Roth, Kunth, *Enum.* iv. p. 336. *Drimia*, Kunth, *Enum.* iv. p. 338, non Jacq. *Eratobotrys*, Fenzl, Kunth, *Enum.* iv. p. 679. *Xeodolon* and *Sugillaria*, Salisb. *Gen.* p. 18.

Sub-genus *ENDYMION*. Flores cæruleæ raro roseo-purpureæ vel albæ, laciniis pro dimidio inferiore diutine conniventibus, sursum falcato-reflexis. Filamenta inæqualia, ad lacinias plus minus adnata. Ovarium sessile, loculis multiovulatis. Bracteæ lineares, geminatae. — *Endymion*, Dumort. *Fl. Belg.* p. 140 (1827). *Agraphis*, Link. *Handb.* p. 166 (1829).

We proceed next to describe the species of the section *Ledebouria* that have not been treated already in this work, and to arrange all with which we are acquainted, either from living or dried specimens, in systematic order.

1. *S. Sandersoni*, Baker. Foliis ovato-lanceolatis, synanthiis carnosoherbaceis 2—3 poll. longis acutis basi valde angustatis, scapis 1—2 foliis æquantibus, racemo rotundato denso 12—20-floro subpollicari, pedicellis 3—4 lin. longis inferioribus cernuis, laciniis 1½ lin. longis, saturate roseo-purpureis, filamentis laciniis subæquantibus dimidio superiore purpureis, ovario stipitato basi discoideo ampliato.

Cape of Good Hope. Transvaal, *Sanderson*, v. s. !

Bullb not seen. *Leaves* ovate-lanceolate, two to three inches long by nine to fifteen lines broad, acute, ascending, clasping the base of the scapes, fleshy-herbaceous, narrowed rather suddenly almost to a petiole at the base. *Scapes* one to two, equalling the leaves. *Raceme* nine to ten lines broad, scarcely an inch deep, densely twelve- to twenty-flowered. *Pedicels* three to four lines

long, the lowest cernuous. *Perianth* an eighth of an inch broad and deep, the divisions bright rose-purple, only slightly tinged with green on the keel when mature, spreading from half-way down. *Filaments* nearly equalling the divisions, the upper half bright-coloured. *Ovary* stipitate and the base discoid.

2. *S. revoluta*, Baker. Bulbis globosis tunicatis abunde soboliferis, foliis 5—9 lanceolato-spathulatis synanthiis carnosio-herbaceis 2—3 poll. longis acutis basi longe angustatis viridibus facie superiore scabris, scapis 1—3 gracilibus foliis duplo vel triplo longioribus, racemo laxissimo 10—30-floro primum nutante, pedicellis patulis floribus cernuis duplo vel triplo longioribus, laciniis $1\frac{1}{2}$ —2 lin. longis saturate roseo-purpureis, filamentis laciniis æquantibus dimidio superiore colorato, ovario stipitato basi ampliato discoideo. — *Hyacinthus revolutus*, Linn. Suppl. 204; Thunb. Prodr. 64. *Drimia revoluta*, Kunth, Enum. iv. 341.

Cape of Good Hope, described from *Burchell*, 7982! and dried specimens from Hort. Liverpool and Hort. Paris.

Bulbs roundish, tunicated, an inch thick, copiously soboliferous. *Leaves* five to nine to a bulb, fleshy-herbaceous, spreading, green, lanceolate-spathulate, two to three inches long, half to five-eighths of an inch broad, acute, scabrous on the upper surface, much narrowed at the base. *Scapes* slender, two or three times as long as the leaves. *Raceme* ten- to thirty-flowered, very lax, at first nutant, an inch and a half to two inches long by twelve to fifteen lines broad when expanded. *Pedicels* horizontal, four to six lines long. *Perianth* a line and a half to two lines deep, cernuous, campanulate, bright rose-purple with a green keel, the divisions spreading from two-thirds of the way down when expanded. *Filaments* nearly as long as the divisions, bright-coloured in the upper half. *Ovary* stipitate, the base discoidly dilated.

3. *S. minima*, Baker. Bulbis gracilibus ovoideis, foliis 2—3 ascendentibus carnosio-herbaceis synanthiis linearibus 12—18 lin. longis acutis, scapis gracilibus flexuosis foliis excedentibus, racemo laxo erecto subpollicari 12—20-floro, pedicellis patentibus infimis floribus cernuis subduplo longioribus, perigonio campanulato saturate roseo-purpureo 1 lin. longo, filamentis laciniis subæquantibus supra coloratis, ovario stipitato basi discoideo ampliato.

Cape of Good Hope, *Drege*, 3510! Macalisberg, *Burke*! v. s.

Bulb ovoid, a quarter to three-eighths of an inch thick. *Leaves* two or three to a bulb, ascending, fleshy-herbaceous, acute, twelve to eighteen lines long, a line to a line and a half broad, slightly narrowed downwards. *Scapes* one or two to a bulb, very slender, flexuose, an inch and a half to two inches long. *Raceme* lax, erect, twelve- to twenty-flowered, nine to twelve lines long by five to six lines broad. *Pedicels* a line and a half to two lines long, horizontal, the lowest slightly curved. *Perianth* cernuous, campanulate, not more than a line deep, the same colour as in the last. *Filaments* and *ovary* as in the two preceding.

4. *S. Cooperi*, Hook. fil. Bot. Mag. 5580. Bulbo subgloboso foliis 4—5 synanthiis carnosio-herbaceis ascendentibus loratis subpedalibus viridibus deorsum dorso purpureo-maculatis, scapo foliis duplo brevior, racemo sublaxo 30—40-floro 2—3-pollicari, pedicellis patentibus floribus cernuis 2—3-plo longioribus, perigonio campanulato $1\frac{1}{2}$ lin. longo saturate roseo-purpureo, filamentis laciniis subæquantibus supra coloratis, ovario stipitato basi discoideo ampliato.

Cape of Good Hope, imported by Mr. Cooper.

Bulb subglobose, tunicated, an inch thick. *Leaves* four to five to a scape, ascending, fleshy-herbaceous, ten to twelve inches long by six to nine lines broad when fully developed, green on both sides, streaked and spotted with purple on the back downwards. *Scape* firm, erect, four to five inches long. *Raceme* moderately dense, thirty- to forty-flowered, two to three inches long by an inch broad when expanded. *Pedicels* three-eighths to half an inch long, patent or the lowest a little nutant. *Perianth* cernuous, bright purple, campanulate, an eighth of an inch deep, the divisions reflexed from half-way down when expanded. *Stamens* bright purple, nearly as long as the divisions. *Ovary* distinctly stipitate and the base dilated.

5. *S. firmifolia*, Baker. Bulbo ovoideo magno, foliis 4—5 synanthiis coriaceis nervosis ascendentibus semipedalibus vel ultra anguste linearibus, scapo foliis subæquante, racemo sublaxo angusto 3—4 poll. longo 30—40-floro, pedicellis erecto-patentibus floribus subæquantibus, perigonio campanulato $1\frac{1}{2}$ lin. longo saturate roseo-purpureo, filamentis laciniis subæquantibus deorsum applunatis lanceolatis, ovario sessili basi nullo modo ampliato.

Cape of Good Hope, *Drege*, 4192! Eastern frontier, *P. Macowan*! v. s.

Bulb ovoid, twelve to fifteen lines thick. *Leaves* four or five to a scape, narrowly linear, rigidly coriaceous, strongly nerved, five to six inches long in the specimens, a line and a half to two lines broad, ascending. *Scape* firm, erect, equalling the leaves. *Raceme* moderately dense, thirty- to forty-flowered, three to four inches long by half to five-eighths of an inch broad whilst in flower. *Pedicels* erecto-patent, two to three lines long, sometimes geminate. *Bracts* more developed than in the other species, linear, equalling the buds. *Perianth* campanulate, bright rose-purple, an eighth of an inch broad and deep, spreading nearly or quite from the base when expanded. *Stamens* nearly as long as the divisions, flattened and lanceolate at the base. *Ovary* neither stipitate nor dilated at the base.

By the shape of its perianth and ovary this quite connects the *Ledebouria* with the *Scillæ* of the *autumnalis* group.

6. *S. zambesiaca*, Baker. Foliis 2—3 synanthiis membranaceo-herbaceis lanceolato-spathulatis 2—3 poll. longis deorsum ad petiolum concavum lamina breviora ciliis angustatis, scapis 1—2 gracilibus 2—3 poll. longis, racemo laxo 2—2½ poll. longo 30—40-floro, pedicellis patentibus floribus cernuis subduplo longioribus, perigonio campanulato omnino viridi 1 lin. longo, filamentis laciniis subæquantibus ægre purpureo tinctis, ovario stipitato.

Zambesi land, a few miles below Tette, in sandy soil near the mouth of the river, discovered by Dr. Kirk on the Livingstone expedition.

Bulb not seen. *Leaves* three to a bulb in the specimens, thinner in texture than in the other species, lanceolate, two to two and a half inches long, nine to ten lines broad, acute, narrowed at the base into a petiole shorter than the blade which clasps the base of the scape. *Scapes* one or two, erect, very slender, two to three inches long. *Raceme* moderately lax, thirty- to forty-flowered, an inch and a half to two inches and a half long, half an inch broad when expanded. *Pedicels* patent, a line and a half to two lines long. *Flowers* cernuous, campanulate, a line deep, green not at all tinged with purple, spreading from half-way down when expanded. *Stamens* filiform, nearly as long as the divisions, scarcely at all tinged with purple. *Ovary* distinctly stipitate.

7. *S. Camerooniana*, Baker. Bulbo ovoideo hypogæo tunicato, foliis 4—5 erectis carnosio-herbaceis 6—8 poll. longis loratis deorsum in petiolum brevem sensim angustatis, scapo flexuoso foliis brevior, racemo modice laxo 20—30-floro $1\frac{1}{2}$ —2 poll. longo, pedicellis patentibus inferioribus curvatis floribus cernuis excedentibus, perigonio campanulato purpureo-viridi $1\frac{1}{2}$ lin. longo, filamentis laciniis subæquantibus dimidio superiore colorato, ovario stipitato basi discoideo ampliato.

Banks of the River Cameroon, in cultivated fields, *G. Mann*, 728! v. s.

Bulb ovoid, immersed and tunicated to the neck, six to nine lines thick. *Leaves* four or five to a bulb, erect, fleshy-herbaceous, lorate, six to eight inches long, six to eight lines broad, narrowed gradually to a bluntish point, and very gradually downwards into short concave *petioles* sheathing the base of the scape. *Scape* slender, flexuose, four to six inches long. *Raceme* moderately dense, twenty- to thirty-flowered, an inch and a half to two inches long by seven to eight lines broad when expanded. *Pedicels* patent, a line and a half to two lines long, the lower curved. *Perianth* cernuous, campanulate, greenish with a slight tinge of purple, an eighth of an inch deep, reflexed from half-way down when expanded. *Filaments* nearly equalling the divisions, bright purple in the upper half. *Ovary* stipitate and the base discoid.

8. *S. Ludwigii*, Baker. Bulbo ovoideo dimidio superiore emerso squamoso, foliis 5—6 synanthiis carnosio-herbaceis ascendentibus lanceolatis 2—3 poll. longis basi ægre angustatis, scapo foliis subæquante, racemo subdenso 20—30-floro $1\frac{1}{2}$ —2 poll. longo, pedicellis patentibus vel cernuis floribus subæquantibus, perigonio campanulato omnino viridi 1 lin. longo, filamentis filiformibus haud purpureis laciniis triente brevioribus, ovario stipitato basi discoideo ampliato. —*Drimia Ludwigii*, Miquel. *Idothea*? *Ludwigii*, Kunth, *Enum.* iv. p. 681. *D. ensifolia*, Zeyher, Linn. xx. p. 235 (*nomen solum*).

Cape of Good Hope, *Zeyher*, 4262! v. s.

Bulb ovoid, nine to twelve lines thick, the upper half emergent and squamose. *Leaves* five or six to a bulb, fleshy-herbaceous, lanceolate, ascending, two to three inches long, four to six lines broad, acute, slightly narrowed at the base. *Scape* flexuose, about as long as the leaves. *Raceme* moderately dense, twenty-

to thirty-flowered, an inch and a half to two inches long, by three-eighths of an inch broad when expanded. *Pedicels* slender, scarcely exceeding the entirely green campanulate *perianth*, which is not more than a line deep. *Stamens* filiform, not coloured, a third shorter than the divisions. *Ovary* stipitate, the base dilated and discoid.

9. *S. maesta*, Baker. Bulbo ovoideo crasso subimmerso, foliis 5—6 synanthiis carnosio-herbaceis lanceolatis purpureo-maculatis 5—6 poll. longis acuminatis basi ægre angustatis, scapis foliis brevioribus, racemo angusto modice denso $1\frac{1}{2}$ —2 poll. longo 30—50-floro, pedicellis erecto-patentibus floribus ascendentibus æquantibus vel duplo longioribus, perigonio infundibuliformi-campanulato $1\frac{1}{2}$ lin. longo omnino viridi, filamentis haud coloratis laciniis triente brevioribus, ovario stipitato basi discoideo ampliato.

Delta of the Zambesi, *Dr. Kirk!* v. s.

Bulb ovoid, fifteen to eighteen lines thick, subimmersed. *Leaves* five or six to a bulb, fleshy-herbaceous, lanceolate, ascending, five to six inches long, six to nine lines broad three-quarters of the way down, acuminate, slightly narrowed at the base, spotted with purple. *Scapes* two or three to a bulb, flexuose, rather shorter than the leaves. *Raceme* thirty- to fifty-flowered, an inch and a half to two inches long, half to five-eighths of an inch broad. *Pedicels* erecto-patent, two to three lines long. *Perianth* half as long again as broad, an eighth of an inch deep, entirely green. *Filaments* not coloured, a third shorter than the divisions. *Ovary* stipitate, the base discoid.

10. *S. prasina*, Baker. Bulbo ovoideo subimmerso, foliis 5—6 synanthiis ascendentibus carnosio-herbaceis lanceolatis 4—6 poll. longis acutis basi paullulum angustatis purpureo-maculatis, scapo foliis brevioris, racemo 30—40-floro modice denso 2—3 poll. longo, pedicellis patentibus, inferioribus cernuis 2—3 lin. longis, perigonio campanulato omnino viridi vel ægre purpureo tincto $1\frac{1}{2}$ lin. longo, filamentis laciniis subæquantibus supra coloratis, ovario stipitato basi discoideo ampliato.

Kaffirland, *Dr. Gill!* Graham's Town; flowered in Hort. Kew, March, 1862; v. s.

Bulb ovoid, subimmersed, nine to twelve lines thick. *Leaves* five or six to a bulb, fleshy-herbaceous, lanceolate, ascending,

purpureo-maculate, five to six inches long, twelve to fifteen lines broad three-quarters of the way down, somewhat narrowed to the base. *Scapes* flexuose, shorter than the leaves. *Raceme* twenty-to forty-flowered, moderately dense, an inch and a half to two inches long by eight or nine lines broad when expanded. *Pedicels* a line and a half to three lines long, the lower ones drooping. *Perianth* an eighth of an inch deep, campanulate, entirely green or faintly tinged with purple, spreading from half-way down when expanded. *Filaments* nearly as long as the flower, the upper half bright purple. *Ovary* distinctly stipitate, dilated and six-lobed at the base.

11. *S. undulata*, Baker. Bulbo crasso globoso sursum squamoso foliis 5—6 hysteranthiis linearibus 3—4 poll. longis lateribus crispato-undulatis, scapo foliis brevior, racemo 20—30-floro 2 poll. longo, pedicellis patentibus floribus subæquantibus, perigonio infundibuliformi-campanulato 4 lin. longo laciniis viridibus ægre purpureo tinctis, filamentis laciniis subæquantibus, ovario stipitato.—*Drimia undulata*, Jacq. Ic. ii. p. 15, t. 376; Kunth, Enum. iv. p. 340.

Cape of Good Hope, *Jacquin*.

Bulb globose, squamose, an inch and a half to two inches thick. *Leaves* produced after the flowers, five or six to a bulb, ascending, linear, three to four inches long, three to four lines broad, acute. *Scape* an inch and a half to two inches long. *Raceme* twenty- to thirty-flowered, two inches long by fifteen lines broad when developed. *Pedicels* patent, equalling the flowers, which are four lines deep, green faintly tinged with purple, the divisions reflexed from two-thirds of the way down. *Filaments* nearly as long as the divisions, not bright-coloured. *Ovary* stipitate.

12. *S. Richardiana*, Buching. Bulbo ovoideo immerso tunicato, foliis 2 synanthiis carnosio-herbaceis lanceolatis 2—3 poll. longis basi in petiolis scapum amplexantibus spatulatim angustatis interdum margine proliferis, scapo foliis excedente, racemo laxo 20—30-floro 2—3 poll. longo, pedicellis floribus primum cernuis subæquantibus, perigonio purpureo-viridi campanulato 2—2½ lin. longo, filamentis laciniis subæquantibus sursum saturate coloratis, ovario sessili profunde trilobo basi haud ampliato. — *Eratobotrys bifolia*, Hochst. in Schimp. Pl. Abyss. No. 1622; A. Rich. Fl. Abyss. ii. p. 326. *Drimia bifolia*, Schwein. Fl. Æthiop. p. 294.

Abyssinia, *Schimper!* *Quartin-Dillon*, and *Petit!* v. s.

Bulb ovoid, immersed, tunicated, eight or nine lines thick. *Leaves* never more than two, fleshy-herbaceous, lanceolate, two to three inches long, spathulately narrowed into a petiole which clasps the base of the scape, the edge sometimes bulbiferous. *Scape* four to six inches long. *Raceme* twenty- to thirty-flowered, lax, two to three inches long when expanded by an inch broad. *Pedicels* three to four lines long, at first cernuous, afterwards ascending. *Perianth* campanulate, two to two and a half lines deep, greenish purple. *Filaments* nearly as long as the divisions, the upper part bright-coloured. *Ovary* sessile, deeply bluntly three-lobed.

13. *S. indica*, Baker. Bulbo ovoideo immerso tunicato, foliis 4—6 synanthiis carnosio-herbaceis lanceolatis interdum maculatis 3—6 poll. longis basi valde angustatis interdum margine proliferis, scapis foliis subæquantibus, racemo modice laxo 30—60-floro 2—3 poll. longo, pedicellis 2—3 lin. longis subpatentibus, perigonio campanulato 2 lin. longo viridi-purpureo, filamentis laciniis subæquantibus sursum saturate coloratis, ovario subsessili profunde trisulcato basi haud ampliato.—*Ledebouria hyacinthina*, Roth, Nov. Spec. 195; Kunth, Enum. iv. p. 336; Wight, Ic. t. 2040. *Barnardia indica*, Wight, Ic. t. 2041.

Peninsular India and Ceylon, v. s.

Bulb ovoid, tunicated, immersed, one to two inches thick. *Leaves* five or six to a scape, fleshy-herbaceous, lanceolate, three to six inches long, an inch to an inch and a half broad, much narrowed at the base, in damp places proliferous at the margin, often maculate. *Scapes* one to four from a root, generally about as long as the leaves. *Raceme* two to three inches long by an inch broad when expanded, thirty- to sixty-flowered. *Bracts* minute, deltoid. *Pedicels* slender, a quarter to three-eighths of an inch long. *Perianth* campanulate, two lines long, often entirely purplish, sometimes greenish, spreading from half-way down when expanded. *Stamens* filiform, nearly as long as the divisions, the upper half bright-coloured. *Ovary* sessile, deeply bluntly three-lobed, not dilated at the base.

We do not possess material for defining *Drimia maculata*, Dalzell, Kew Journ. ii. p. 143, as distinct from this species.

14. *S. lilacina*, Baker. Bulbo ovoideo immerso tunicato, foliis 6—8 carnosio-herbaceis synanthiis lanceolatis 4—6 poll. longis acutis basi valde angustatis, scapis foliis subæquantibus, racemo laxo 3—4 poll. longo 30—60-floro, pedicellis 3—4 lin. longis, perigonio anguste infundibuliformi $2\frac{1}{2}$ —3 lin. longo viridi-purpureo, filamentis laciniis subæquantibus sursum saturate coloratis, ovario sessili profunde trisulcato basi haud ampliato.—*Eratobotrys lilacina*, Fenzl, in *Kotschy, Pl. Nub.* No. 391; *Kunth, Enum.* iv. p. 679. *Drimia lilacina*, Schwein. *Fl. Æthiop.* p. 294.

Kordofan, *Kotschy*, 391! Matamma, *Schweinfurth*, 13! v. s.

Bulb ovoid, immersed, brown-tunicated, an inch and a half to two inches thick. *Leaves* six to eight to a bulb, fleshy-herbaceous, ascending, four to six inches long, twelve to fifteen lines broad, acute, narrowed at the base into short petioles sheathing the base of the scape. *Scapes* one to three to a bulb, about equalling the leaves. *Raceme* lax, thirty- to sixty-flowered, three to four inches long by twelve to fifteen lines broad when expanded. *Pedicels* three to four lines long, the lower ones at first nutant, the upper ones as bright in colour as the flowers. *Perianth* two and a half to three lines long, in bud nearly three times as long as thick, purplish lilac with a more or less decided green tinge on the outside, spreading from three-quarters of the way down when expanded. *Filaments* nearly as long as the divisions, bright purple except at the base. *Ovary* sessile, bluntly three-lobed, not dilated at the base. Very like the last in everything except the shape and size of the flowers.

15. *S. socialis*, Baker, tabula nostra, 180.

16. *S. paucifolia*, Baker, tab. nostra, 181.

17. *S. lanceifolia*, Baker, tab. nostra, 182.

18. *S. ovatifolia*, Baker, tab. nostra, 183.

19. *S. linearifolia*, Baker, tab. nostra, 184.

20. *S. concolor*, Baker. *Drimia Cooperi*, Baker, tab. nostra, t. 18.

As there is already a *Scilla Cooperi*, we are obliged to give this a new specific name.

21. *S. lorata*, Baker. *Drimia* apertiflora, Baker, tab. nostra, t. 19.

Placing this in *Scilla*, the specific name first given is appropriate no longer.

22. *S. subglaucæ*, Baker, tab. nostra, 186.

23. *S. zebrina*, Baker, tab. nostra, 185.

24. *S. spathulata*, Baker, tab. nostra, 187.

25. *S. floribunda*, Baker, tab. nostra, 188.

26. *S. pendula*, Baker. Foliis synanthiis carnosio-herbaceis loratis acutis pedalibus vel ultra maculis saturatioribus notatis, basi paullulum angustatis, scapo gracili foliis brevioribus, racemo sublaxo 30—60-floro 3—6 poll. longo, pedicellis pergracilibus pendulis 9—15 lin. longis, bracteis parvis linearibus, perigonio 4—4½ lin. longo viridipurpureo, filamentis laciniis subæquantibus sursum saturate coloratis, ovario stipitato basi discoideo ampliato. — *Drimia pendula*, Burchell, MSS.

Cape of Good Hope, imported and cultivated by Burchell, and characterised from his dried specimens and notes.

Bulb not seen. *Leaves* fleshy-herbaceous, twelve to fifteen inches long, fifteen to sixteen lines broad, acute, lorate, slightly narrowed at the base, with a few faint blotches. *Scapes* slender, six to nine inches long. *Racemes* thirty- to sixty-flowered, three to six inches long by two and a half to three inches broad when expanded. *Pedicels* nine to fourteen lines long, very slender, pendulous, subtended by minute linear bracts. *Perianth* four to four and a half lines deep, greenish purple, reflexed two-thirds of the way down when expanded. *Filaments* nearly as long as the divisions, bright purple upwards.

27. *S. princeps*, Baker, tab. nostra, 189.

28. *S. lanceolata*, Baker. Bulbo globoso, foliis 5—6 synanthiis lanceolatis carnosio-herbaceis 3—4 poll. longis basi paullulum angustatis immaculatis, scapo flexuoso foliis excedentibus, racemo laxo 8—12-floro, pedicellis floribus sesqui longioribus, perigonio purpureo-viridi 4½ lin. longo, filamentis laciniis paullulum brevioribus, ovario stipitato. — *Drimia lanceolata*, Schrad., Kunth, Enum. iv. p. 339. *Lachenalia reflexa*, Andr. Bot. Rep. t. 229.

Cape of Good Hope, known to us only by the published figure and descriptions.

Species published by name only, or with descriptions not definite enough to characterise them.

- Drimia Dregeana*, Kunth, Enum. iv. p. 340.
 „ *angustifolia*, Kunth, loc. cit.
 „ *viridiflora*, “Ecklon?” Kunze, Linnæa, xx. p. 10.
 „ *nitida*, Ecklon, Linnæa, xx. p. 235.

Key to all the Species.

Small-flowered species. Perianth not more than a line or an eighth of an inch deep.

Flowers bright rose-purple.

Leaves ovate-lanceolate or lanceolate, 12—18 lines broad, much narrowed at the base.

Scape equalling the leaves; raceme dense. 1. *Sandersoni*.

Scape 2—3 times the length of the leaves; raceme very lax. 2. *revoluta*.

Leaves linear, not narrowed at the base.

Evanescent, the whole plant only 2—3 inches high. 3. *minima*.

Firm, a foot high.

Leaves herbaceous; pedicels spreading, 2—3 times the length of the flowers. 4. *Cooperi*.

Leaves rigid; pedicels erecto-patent, 1—1½ times the flowers. 5. *firmifolia*.

Flowers entirely green or scarcely tinged with rose-purple.

Leaves narrowed into a distinct petiole.

Leaves lanceolate-spathulate, 2—3 inches long. 6. *zambesiaca*.

Leaves lorate, 6—8 inches long. 7. *Camerooniana*.

Leaves lanceolate, scarcely narrowed at the base.

Leaves 6—9 lines broad near the base. Perianth campanulate, as broad as deep. 8. *Ludwigii*.

Perianth infundibuliform, 1½ times as deep as broad. 9. *maesta*.

Leaves 12—15 lines broad near the base. 10. *prasina*.

Middle-sized flowered species. Perianth 2—3 lines deep.

Flowers produced after the leaves, linear crispat-undulate. 11. *undulata*.

Leaves contemporaneous with the flowers.

Racemes overtopping the leaves.

Leaves narrowed into a distinct petiole.

- Ovary sessile, not dilated at the base, deeply three-lobed.
- Leaves never more than two to a scape. . 12. *Richardiana*.
- Leaves 5—6 to a scape.
- Perianth campanulate, 2 lines deep. . 13. *indica*.
- Perianth infundibuliform, $2\frac{1}{2}$ —3 lines deep. 14. *lilacina*.
- Leaves scarcely narrowed at the base; ovary stipitate, dilated at the base.
- Flowers quite green.
- Racemes dense; pedicels 1— $1\frac{1}{2}$ times the flowers. 15. *socialis*.
- Racemes lax; pedicels three times the flowers. 16. *paucifolia*.
- Flowers rose-purple.
- Leaves three times as long as broad. . 17. *lanceaefolia*.
- Leaves $1\frac{1}{2}$ times as long as broad. . 18. *ovatifolia*.
- Leaves equalling or overtopping the racemes.
- Leaves linear-ensiform, 6—8 lines broad. 19. *linearifolia*.
- Leaves lorate-lanceolate, 1—2 inches broad.
- Flowers green; leaves not spotted. . 20. *concolor*.
- Flowers bright-coloured; leaves more or less spotted.
- Leaves lorate, an inch broad.
- Leaves green, as high as the raceme. 21. *lorata*.
- Leaves glaucous, much overtopping the raceme. 22. *subglauc*.
- Leaves 18—21 lines broad.
- Leaves slightly narrowed at the base; filaments much shorter than the perianth. 23. *zebrina*.
- Leaves spatulately narrowed at the base; filaments nearly as long as the perianth. 24. *spathulata*.
- Large-flowered species. Perianth $4\frac{1}{2}$ —5 lines deep.
- Leaves lorate, 1—2 feet long.
- Pedicels scarcely longer than the flowers. 25. *floribunda*.
- Pedicels 2—3 times the length of the flowers.
- Raceme 30—60-flowered; pedicels pendulous, very slender. 26. *pendula*.
- Raceme 100—200-flowered; pedicels firm, patent. 27. *princeps*.
- Leaves lanceolate, 3—4 inches long. 28. *lanceolata*.

Genus *DRIMIOPSIS*, *Lindley & Pax. Flow. Gard.* ii. p. 73. Perigonium corollinum, albidum, campanulatum, ad basin sexpartitum, segmentis subæqualibus erectis ovatis apice cucullatis. Ovarium sessile, globosum, triloculare, trisulcatum, ovulis in loculis 2 collateralibus ascendentibus; stylus erectus, crassiusculus, ovario subæquans; stigma capitatum. Stamina ex basi laciniarum uniseriata, distincte perigyna, filamentis erectis lanceolatis segmentis triplo brevioribus, antheris versatilibus oblongo-rotundatis. Capsula membranacea, loculicide trivalvis, seminibus in loculis solitariis, haud compressis. Herbæ africanæ bulbosæ scapigeræ floribus spicatis vel subspicatis.

This agrees with some of the species of *Scilla* § *Ledebouria* in its ovary; differing by its shorter style and filaments, spicate white flowers, and the different shape of the perianth and its divisions.

* *Leaves narrowed into a distinct petiole.*

1. *D. maculata*, Lindl. tab. nostra, 191.

2. *D. minor*, Baker, tab. nostra, 192.

3. *D. botryoides*, Baker. Foliis carnosio-herbaceis lanceolato-spathulatis 3—4 pollicaribus acutis basi ad petiolum brevem scapum vaginante sensim angustatis, scapo foliis duplo longiore, floribus 12—30 dense spicatis, perigonio botryoideo $1\frac{1}{2}$ lin. longo laciniis ovato-ligulatis.

From the collection of Justice Blackburn of Mauritius, localised "Africa orientalis," v. s.

Bulb not seen. *Leaves* two or probably more to a scape, very fleshy, lanceolate-spathulate, three to four inches long, fifteen to eighteen lines broad, acute, narrowed gradually into a petiole sheathing the base of the scape for about an inch. *Scape* erect, seven to eight inches long. *Flowers* twelve to thirty in a dense spike twelve to eighteen lines long, three-eighths of an inch broad. *Perianth* an eighth of an inch deep, globose, the divisions permanently convergent, ovate-ligulate. *Stamens* as in the preceding.

** *Leaves not narrowed into a petiole.*

4. *D. Burkei*, Baker. Bulbo ovoideo tertio superiore emerso subsquamoso, foliis 2—3 carnosio-herbaceis ascendentibus lanceolatis bi-tripollicaribus acutis infra medium paullulum angustatis, scapo gracili flexuoso $1\frac{1}{2}$ —2 poll. longo, floribus 12—30 dense subspicatis, perigonio 1 lin. longo laciniis ovato-ligulatis.

Cape of Good Hope, Aapages river, *Burke!* v. s.

Bulb ovoid, not more than half an inch thick, the upper part emerged and subsquamose. *Leaves* two or three to a scape, fleshy-herbaceous, ascending, lanceolate, two to three inches long, six to nine lines broad, slightly narrowed at the base. *Scape* slender, flexuose, an inch and a half to two inches long. *Flowers* twelve to thirty, densely subspicate, the *spike* six to twelve lines long, three to four lines thick. *Perianth* not more than a line deep, the divisions ovate-ligulate, the *style* very short, and *filaments* not more than a third of the length of the divisions.

5. *D. Barteri*, Baker. Bulbo ovoideo tunicato, foliis lorato-lanceolatis ægre pedilibus firmulis acutis maculatis dimidio inferiore paullulum sensim angustatis, scapis foliis subæquantibus, floribus 30—50 dense spicatis, perigonio $1\frac{1}{2}$ lin. longo laciniis ovato-ligulatis.

Niger country: rocky plains near Nupe, *Barter*, 1512! 3445!
v. s.

Bulb ovoid, tunicated, an inch thick. *Leaves* two or perhaps more to a bulb, firmer in texture than in the other species, lorate, nearly a foot long when fully developed by six to nine lines broad at the middle, narrowed gradually to the base but not distinctly petiolate, "spotted," the lower part clasping tightly the base of the scape. *Scape* straight, erect, nearly as long as the leaves. *Flowers* thirty to fifty in a dense *spike* an inch and a half to two inches and a half long by three-eighths of an inch broad. *Perianth* an eighth of an inch deep, the divisions ovate-ligulate, greenish white. *Stamens*, *ovary* and *style* as in the other species.—*J. G. B.*

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In concluding Vol. iii. of the 'Refugium Botanicum' before Vol. ii., it may be desirable to explain that this latter volume is entirely devoted to plants of the Orchid family, and that circumstances have not permitted me to publish it so rapidly as I have wished. Another number of Vol. ii., if not a double number, will be shortly in the printer's hands. The commencing number of Vol. iv. will appear early in the autumn.

W. W. S.





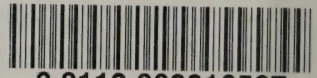
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